

**BUMPER  
100-PAGE  
ISSUE**

# DESERT WARFARE SPECIAL

# MILITARY MACHINES

INTERNATIONAL

## SAS IN THE GULF

**RARE  
ARCHIVE  
PHOTOS**

**EXCLUSIVE**



**ESSENTIAL READING**

### ARMoured COMMAND

AEC Armoured  
Command  
Vehicles  
in WW2

**EXCLUSIVE**



## DESERT INSURGENCY

British Armour in Iraq

## DESERT CRUSADER

Crusader tanks in the desert



**EARLY HISTORY**

**PLUS INSIDE:**

Dennis Restoration  
Pt.2, Jeep Rebuild  
Pt.4, Industry Update,  
Exercise Anakonda  
and more...

DECEMBER 2013 - VOLUME 13 NO.7

**KEY** UK £4.25



9 771473 790064

COMPREHENSIVE EVENTS LISTING, THE BEST FEATURES, ALL THE LATEST NEWS

# 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](mailto:mike@rshfm.co.uk)

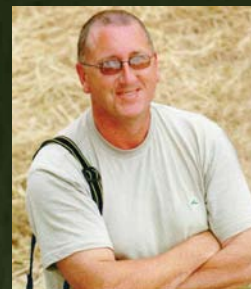


# EDITORIAL

Welcome to our 100-Page 'Desert Warfare' Special in which we've gathered together a collection of articles with a desert warfare theme, covering WW2, the first Gulf War, the war in Iraq before coming right up to date with preparations for the latest deployment to Afghanistan. Of course we've also included a number of other features for those less interested in the desert, as well as your regular features, all of which we hope you enjoy.

On a completely different matter, I am often asked if I have trouble finding enough material to fill the pages of MMI, and to be completely honest

I have to say that in the thirteen years I've been editing MMI I've always had plenty of material to use. The diversity of our hobby, the number of potential subjects combined with newly restored vehicles coming onto the scene together with the support from our contributors and readers means that I have more than enough material to fill the magazine, in fact I could fill at least half a dozen more issues even if I stopped accepting material right now! So with that good news I'll leave you to enjoy this month's Desert Warfare 100-Page Special and I'll be back next month – Ed.



*Ian Young*

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

#### DESIGN

Steve Donovan & Froggatt Designs

#### EXECUTIVE CHAIRMAN

Richard Cox

#### MANAGING DIRECTOR/PUBLISHER

Adrian Cox

#### GROUP EDITOR-IN-CHIEF

Paul Hamblin

#### COMMERCIAL DIRECTOR

Ann Sandry

#### PRODUCTION MANAGER

Janet Watkins

#### AD PRODUCTION MANAGER

Debi McGowan

#### MARKETING MANAGER

Martin Steele

#### 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

#### 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](http://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

**KEY**  
PUBLISHING

# CONTENTS

DECEMBER 2013 VOLUME 13 ISSUE 7

## REGULARS

### 6 UP FRONT

Our monthly round up of the latest news and views

### 57 TANK TIMES

The latest news from the world-famous Tank Museum, Bovington

### 86 INTO THE ARCHIVES

James Payne reveals photos from a former serviceman's album who served in Malaysia

### 90 INDUSTRY UPDATE

Shaun Connors updates us on the latest news from the defence industry

### 94 MISSION BRIEFING

The latest military show dates for your diary

### 96 QM STORES

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



46

**Military Exercise**  
**ANAKONDA FTX**



40

**Wartime Classic**  
**ARMoured COMMAND**



20

**Wartime Armour**  
**DESERT CRUSADER**



26

**Classic Conflicts**  
**SAS IN THE GULF**





12

## **Modern Warfare** **DESERT INSURGENCY**

80

## **Show Report** **WAR & PEACE REVIVAL PT.2**



# FEATURES

## WARTIME

### 20 DESERT CRUSADERS

We take a look at the British Crusader tanks fighting in the Western Desert in WW2

### 40 ARMoured COMMAND

Profile of the AEC Dorchester armoured command vehicle and 6x6 heavy command vehicles

### 68 JEEP REBUILD PT.4

The rebuild of the wartime Jeep we have been following concludes with the addition of the final details

### 72 DENNIS THE MENACE PT.2

Tim Gosling concludes his article looking at the rebuild of his Great War Dennis truck

## MODERN

### 12 DESERT INSURGENCY

Carl Schulze looks at some of the armoured vehicles used by the British Army in Iraq

### 26 SAS IN THE GULF

Featuring rare images, we look at some of the vehicles used by the SAS in Gulf War 1

### 32 RHODESIAN VEHICLES

Former soldier Robert Cedars reveals a collection of unusual mine protected vehicles

### 52 OP HERRICK 19

Shaun Connors joined troops preparing for the next deployment to Afghanistan

## EVENTS

### 46 EXERCISE ANAKONDA

Daniel Nowak joined troops during one of the largest Full Spectrum exercises held in Poland

### 62 YORKSHIRE WARTIME EXPERIENCE

Full report from this year's spectacular military vehicle show held near Bradford

### 76 WITHAM'S TENDER

We report on the latest MoD tender sale to be held at Witham Specialist Vehicles

### 80 WAR & PEACE REVIVAL

Simon Thomson brings us his second report from the War & Peace Revival looking at the armoured vehicles

## SUBSCRIBE & SAVE

**MAKE GREAT SAVINGS**  
**WHEN YOU SUBSCRIBE TO**  
**MILITARY MACHINES**  
**INTERNATIONAL**

**See pages 38-39 for details**



# UP FRONT

## NEWS and REVIEWS...

### Austin Champ at the Lancaster Insurance Classic Motor Show

This iconic and quirky 1950's four-wheel drive vehicle has a superb pedigree and is probably best described as a coming together of everything that was "Best of British" at a time when money was no object.

Powered by Rolls Royce and built by Austin, the Champ is the ultimate 'Bond' vehicle that will take many forms, is full of clever gadgets and travels underwater. It's more 'cool' and 'retro' than the Mini and both have Alec Issigonis to thank for their suspension.

So what's going to turn you on to a Champ? Is it, the sheer genius of the mechanics, the five reverse gears, the fully independent suspension, being able to select four wheel drive on the move, the unique note of the engine or being able to drive 2 metres underwater?

It's not just a big Jeep and it's nothing like a Land Rover. Designed to be rugged and unbeatable, these vehicles have found a new lease of life as 'fun' machines for the family to go off road or on the beach whilst still being practical enough to go to the shops.

Originally the majority of Champs were used by the military, which is one of the reasons Champs and members of the owners' club are found all over the world. Robert Plant (of Led Zeppelin fame) has owned one, the Nizam of Hyderabad (Prince Mukarram Jah) has owned one and Winston Churchill had one for transport when visiting the troops.



The Champ is a rare vehicle (fewer than 13,000 were built) and is welcomed at Classic Car and Military shows. They're tax free, MOT exempt, cheap to insure, and joining the owners' club, probably one of the friendliest around, will help ensure you keep a Champ on the road and have many happy hours of motoring.

The Austin Champ Owners' Club won the prestigious Classic & Sports Car 'Club Magazine of the Year' award at the Classic Motor Show in 2012 and this year you can visit our stand in Hall 11 where you will find a selection of Champs designed for different uses. Our display includes a sectional vehicle that was used as a training aid, a fire engine, an extremely rare civilian model, an even rarer winch adaptation and probably one of the best restored Champs in existence.

We'll be showing champ videos all day, and at 11:00 and 15:00 each show day you will be able to participate in a 'Champ Master Class' where one of our team will use the sectional Champ to explain the inner workings of the vehicle. You'll also be able to enter our photo competition and have a chance of winning a year's free membership to enjoy the benefits of three magazines a year and access to the members' area of our web site.

We also hope to re-unite past drivers, passengers and owners with the Champ - and we look forward to hearing your Champ stories!

To find out more about the Austin Champ have a look on the web at: Austin Champ Owners' Club: [www.austinchamp.com](http://www.austinchamp.com)

### British Jeep Curiosity

In response to our request for further information about a Jeep featured in a photo sent in by Des Penny that belonged to his wife's great uncle in our October 2013 issue, we had this emailed reply from 'Geoff' (sadly we don't have a surname) whom we thank for the insight - Ed.

Ian,

On page 10 of the latest issue you ask about this Jeep. The number appears to be M6011785 (?), which if correct is one from a batch of "Cars" "Captured etc". I think it is one of a number of rebuilt Jeeps that are numbered there.

The markings ("47" over Royal Artillery arm-of-service and 5 Division) suggest it is from the Light Anti-Aircraft unit attached to 5 Division at the end of the war. This may be 18 LAA Regiment or could be 5 LAA Regiment who took over that role by 1947. 5 Division ended up in the Braunschweig (Brunswick) area.

Hope this is of some help.

Regards - Geoff



## HDT Protector flail-bot

What do you get if you cross a Goliath Sd.Kfz. 302 with the rear of a Kettenkrad and the business end of a Sherman Crab? Not sure? Neither were we, but HDT Global's Protector comes close and all in a package no bigger than Postman Pat's van. Spotted at London's recent arms fair the Protector is designed to clear paths and carry heavy equipment for foot patrols.

Currently under development with the US military as part of an ongoing programme to combat IEDs, HDT claim the Protector has been tested successfully in the harshest of environments. While justifiably cagey about how many dark-suited Lords of War had opened their cheque books during the show, MMI is assured the Protector is coming to a conflict near you soon. The only thing likely to keep it out of Afghanistan is the planned American downscale.

The Protector can be dropped off by truck or helicopter with the troops it's supporting and trundle beside them at a walking or running pace. The Protector has no combat role other than mobile cover and can be used to transport two battle casualties for helicopter evacuation when fitted with stretchers. Operated using a hand controller with a 400-metre range it's potentially as simple to use as a radio controlled buggy in a supermarket car park. With plans to develop the vehicle as a weapons platform the Protector is more than just a modern day mule and with HDT being one of the largest manufacturers of parachutes in the US, at some point the vehicle is likely to be thrown out of the back of an aircraft.

When fitted with a trailer the Protector can carry 1000lbs



of food, water and ammunition which can't be bad when you're coming to the end of a three-day walkabout in Helmand and the only thing between you and base camp is a crushed oil drum and a trip wire. With its decidedly retro looking flail it's easy to dismiss the Protector as a modern day Hobbart Funny but a lot of those vehicles worked and undoubtedly saved lives. The Author's only query: why no lawn mower attachment to make cutting the grass on his country estate easier...?

(Report by John Woolford)

## Tank Artwork

Another recent visit to the Tank Museum to sift through the archives for features in this issue saw me taking a photo of something I have admired for a while but never thought to photograph. While tanks are my passion, I also like antiques and this stunning bronze sculpture lives in the Great War tank hall, nestling behind the track horns of the massive Mk IX Supply Tank.

The piece is titled "The Triumph of Humanity" by Michael de Tarnowsky and was originally intended to be the design for a 50-foot bronze memorial in London dedicated to Franco-British co-operation in the Great War. This statue is one of just twenty replicas cast that were sold for 100 guineas each in aid of the British League of Help Fund and was originally on display at the Royal Automobile Club in 1920.

The sculpture shows French soldiers to the left of the photo and British soldiers to the right, either side of a British tank emerging from the trenches with the female figure representing 'Humanity' rising above the tank. It truly is a stunning and very rare of



sculpture and best of all it features my favourite type of tank! Sadly I am unlikely to ever have the money to purchase such a work of art should one ever come up for sale, and incidentally, the planned memorial was never built so you're unlikely to see another – Ed.

## Tracks to Trenches

The Moseley Railway Trust is delighted to announce that agreement has been reached for a second visiting steam locomotive for the September 2014 Tracks to the Trenches event. The North Gloucestershire Railway, based at Toddington, have agreed that their 1918-built Henschel "Brigadelok" locomotive will visit the MRT's Apedale Valley Light Railway for the Tracks to the Trenches gala, to be held on September 12, 13 and 14 of 2014.

Almost 2500 of the Brigadelok locomotives were built. These served the German military light railways – known as Heeresfeldbahn – on all the fronts of the war. Despite being built for military service, they subsequently demonstrated their usefulness for many post-war operators. An innovative feature is the Klein-Lindner radial axles, which allow the locomotives to traverse tight radius curves despite the 080 wheel arrangement. The locomotive, which will come to Apedale, is Henschel 15968.



After the end of the First World War, the locomotive worked at the Naklo sugar factory in Poland, hauling trains of sugar beet in from the fields to the factory for processing. In 1985, the loco moved from Poland to the UK, where it was restored to its current immaculate condition, carrying Heeresfeldbahn grey livery and the number 1091.

Phil Robinson, MRT Chairman said "We are extremely grateful to the North Gloucestershire Railway for loaning us this locomotive. When taken with the Baldwin loco, which will visit from Leighton Buzzard, and the Moseley Railway Trust's own "Joffre" and Hudswell Clarke steam locomotives, we now have engines representing all the main combatants in the First World War. Our event is all about commemorating all those who participated in this conflict, regardless of nationality, and we believe that representing the German forces is key to this".

The Kerr Stuart locomotive "Stanhope", normally resident at Apedale, will be making a reciprocal visit to the North Gloucestershire Railway during 2014.

# NEMVC Military Vehicle Rally



Des Penny attended his local military vehicle rally staged by the North East Military Vehicle Club in the grounds of the Durham Light Infantry Museum and Durham Art Gallery earlier this year and he's sent in a selection of photos taken at the event.

The show this year marked the 40th Anniversary of the first Historic Vehicle Rally at the DLI Museum and saw an impressive collection of vehicles turning up to show their support for this popular show.

As usual it attracted a wide collection of vehicles covering all periods





with a number of rare types amongst visiting vehicles. Vehicles of note included a German VW Kubelwagen and NSU Kettenkrad, a Fordson WOT 3, Austin K6 gantry truck, and even a Fowler road locomotive dating from the 1900s. Also there was the 1936 Vickers Carden-Loyd

Utility Tractor featured in our Yorkshire Wartime Experience show report and a fine collection of Jeeps of varying types.

Our thanks to Des for sending in the photos, and congratulations to the NEMVC on their 40th Anniversary Show - Ed.



# Turkish Sightings

Des Penny sent in a few photos from a recent holiday in Turkey where he came across a couple of ex-military vehicles. The first is a CJ3A Jeep, which at first Des thought might be a civilian vehicle done up to resemble a wartime Jeep, but with this type also seeing widespread service with many countries, including Turkey, it is possible that this is an ex-Turkish Army Jeep, in which case it is probably a CJ3B Jeep, of which 1,600 were supplied to the Turks in 1959 as CKD (Complete Knock Down) vehicles for assembly by Turk Willys-Overland Ltd near Istanbul, albeit heavily modified to reduce the bonnet height typical of the CJ3B.

The other vehicle featured is a civilianized ex-military Mercedes-Benz Unimog S404 soft crew cab variant and powered by a 6-cylinder 2195cc engine. It looks to have had a fairly hard life, but I'm sure someone would be only too happy to take it on as restoration project given half a chance.

Our thanks to Des for sending in the photos – Ed.



## Revell New Releases

This month we have two new releases from Revell and both very different in terms of their subject matter, although they are both military related. The first is the Russian T-90 Main Battle Tank (Ref. 03190) in their 1/72 range of tank kits. The kit is supplied in sand coloured plastic with the parts on five sprues and featuring the bendable plastic style of track. The suspension is well detailed but not supplied with separate swing arms so it's easier to build for the beginner but retains a good level of detail. Also included are the add-on appliqué ERA armour panels that festoon the exterior of the tank and various optional parts and a small decal sheet that enable the builder to create either a Russian Army tank or an Indian Army vehicle.



The comprehensive instruction sheet is, as ever, easy to follow and includes details for various camouflage schemes used on the T-90. Overall this is a nice little kit with plenty of detail and with a sensible retail price of around £10.50.

The second release is a complete contrast, despite also being modelled to the same 1/72

scale, and representing the WW2 German Type XXVII 'Seehund' midget submarine. While larger scale models of this well-known midget sub already exist, this new release from Revell (Ref. 05125) is the same scale as their well-liked Type VII U-boat and soon to be released Type IX sub. The kit isn't actually by Revell, bearing the ICM markings on the single sprue of grey plastic, and is merely boxed and marketed by the German company



Revell, but the quality of the mouldings is pretty good, although the detailing is a little heavy in few places, but easy to sort out. A small decal sheet is included along with painting details on the instruction leaflet. The rrp is £12.99, which to mean seems a little steep give the comparative lack of content and detail found on the tanks in the same scale, but no doubt it will be popular with marine modelers.

Revell model kits are available from all good toy and model retailers. For further information visit: [www.revell.eu](http://www.revell.eu) or email [ukbranch@revell.de](mailto:ukbranch@revell.de)

## New from Key Publishing – Wellington

Key Publishing is pleased to announce the launch of Wellington, a new magazine special commemorating Bomber Command's unsung warrior. Until the advent of the 'heavies' – the Stirling, Halifax and Lancaster – the Wellington bore the brunt of Bomber Command's onslaught on occupied Europe. Built using the revolutionary geodetic construction developed by Barnes Wallis, the Wellington developed a reputation for being able to take a lot of punishment and still bring crews home.

Enthusiasts the world over have a great respect for the Wellington and this 100-page special magazine provides a much sought-after tribute to an incredible warplane.

Available for just £4.99 from WHSmith, Sainsbury's and leading newsagents from Thursday 17 October. Alternatively, order your copy from [www.keypublishing.com/shop](http://www.keypublishing.com/shop) - delivery from Monday 14 October.

Key magazine subscriber? Call 01780 480404 to claim your £1 special discount.



# AIR & GROUND 2 DAY AUCTION

**Wednesday 20th & Thursday 21st November 2013, 10am Viewing Tuesday 19th November 2013**

**Hixon Airfield, Hixon, Stafford, England ST18 0PF**

Due to relocation to new premises, Malcolm Harrison Auctions has been instructed to sell a large quantity of  
Ex MOD equipment – including Airframes, Engines & Ancillary items

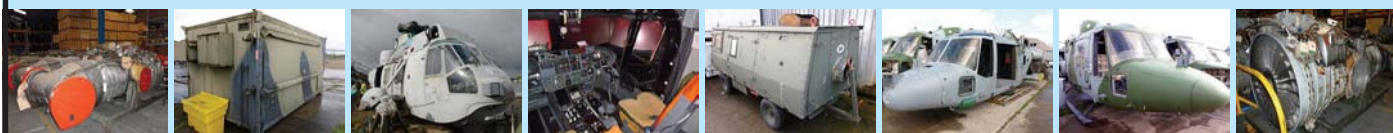
**AS350B Single Squirrel Helicopter & Robinson R44 Raven II Helicopter**

Phantom Fighter Airframe  
Lynx Helicopter Airframes  
Sea King Helicopter Airframes  
Rolls Royce Pegasus Engines  
Turmo 3C4 Engines  
Viper Mk10201 Engines  
Lynx Main Rotor Gearboxes  
Astazou Engines  
Lynx Simulator, Motion Deck/Power Pack  
Helicopter Moving Systems  
VC10 Transport Trolley  
Sea King / Apache / Gazelle Rotor Blades  
Rapier Missile Launch Controller  
Gazelle / Puma / Bell Huey Tail Booms



**Very Large Qty Lynx & Sea King Parts / Equipment Extensive  
Aircraft & Helicopter Spare Parts Packages &  
Other Ex MOD Parts & Equipment**

Airbus A380 Jack System &  
Wing Stands & General Stands,  
Communication Cabins, Scanners,  
Tornado Radomes, Tripod/Main Aircraft Jacks,  
Engine Stands, Portable Trestles,  
Sea Harrier Trestles, Aircraft Giraffe Access Platforms,  
Air Cargo Pallets, Transport Trolleys,  
Selection Aircraft Tyres, Mobile Diesel Tanks,  
Maintenance Cranes / Crane Assemblies,  
Land Rover Diffs, Pegasus Engine / Running Stands,  
Pegasus Combustion Chamber Stand,  
Sea Harrier Centre Stands, Wing Turnover Runners,  
EOSDS Turret Frames, Cutting Equipment Kits,  
Workshop Tools & Equipment, Bendi Articulated Forklift



**FREE ONLINE BIDDING AVAILABLE**

Due to printing deadlines this is a small selection of equipment to be offered –  
visit our website for full details. Website updated daily



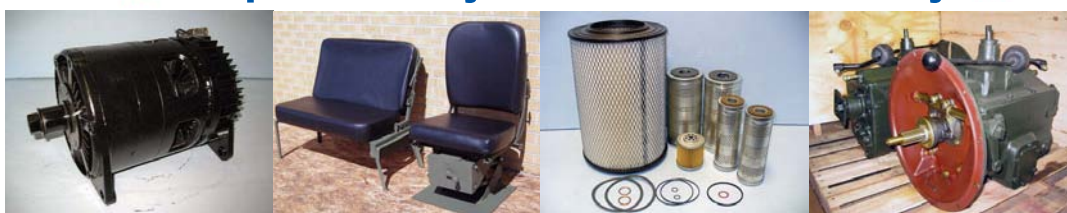
**www.malcolmharrison.co.uk, auctions@malcolmharrison.co.uk**

All overseas and first time buyers not known to the auctioneer must lodge £1000 refundable deposit on registration  
by cash/credit/debit card.

**Contact Charlie Foyle or Graham Johnson(+44)1630 674326**

# 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 ½ TON 6 X 6**

**REO / KAISER JEEP / A M GENERAL 2 ½ 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](http://www.memphisequipment.com) or contact us at [info@memphisequipment.com](mailto:info@memphisequipment.com)



**SHIPPING DOMESTICALLY & WORLDWIDE**



# Desert Insurgency



**CARL SCHULZE** TAKES A LOOK AT BRITISH ARMoured VEHICLES IN IRAQ

## BELOW...

The initial invasion of Iraq saw the participation of a total of 116 Challenger 2 MBTs. Originally designed for a deployment in a temperate Europe environment and in a temperature range of -19°C to +30°C the MBTs had to be modified for use in the deserts of Iraq.

British Armed Forces were deployed to Iraq from 2003 onwards under the codename Operation Telic, supporting the U.S. led Operation Iraqi Freedom. In 2009 the bulk of the British soldiers operating in Iraq were withdrawn and the last British personnel deployed to Iraq under Operation Telic left the country in May 2011.

Operation Telic began as a full-scale conventional war operation, but within months had turned into a bloody insurgency after the initial invasion of

Iraq was completed. According to MoD sources a total of 179 British Armed Forces personnel or MoD civilians died serving under Operation Telic between 2003 and 2011. Of these, 136 were killed as a result of hostile action, most of them not during the initial invasion but during the insurgency. In this article we will take a brief look at the protected mobility and armoured vehicles used by the British Armed Forces during the insurgency fought in Iraq.

Operation Telic was one of the

largest deployments of the British Armed Forces since World War II. Together with U.S., Australian and Canadian troops, some 46,000 British soldiers were involved in the initial invasion of Iraq. After the invasion was completed, the Iraqi Armed Forces were destroyed and the regime of Saddam Hussein deposed, the number of British troops remaining in the country tasked with supporting the restructuring of the country had been reduced to 18,000 by the end of May 2003.





#### ABOVE LEFT...

The FV107 Scimitar CVR(T) Reconnaissance Vehicle is fitted with a 30mm L21A1 Rarden cannon and a coaxially mounted 7.62mm L37A1 machine gun. The vehicle has a crew of three, consisting of the driver, vehicle commander and gunner.

#### ABOVE RIGHT...

Some 900 FV432 Mk2 APCs were brought to FV432 Mk3 standard up to 2011. The first FV432 Mk3 Bulldog entered service with the British Army in August 2006. The FV432 Mk3 was selected in order to fulfil the UOR of the troops deployed to Iraq for a tracked armoured patrol vehicle. The first FV432 Mk3 Bulldog was fielded in Iraq in December 2006.



#### ABOVE...

In a first attempt to equip troops deployed to Iraq under Operation Telic with a suitable protected patrol vehicle CAV 100 Land Rover Snatch were rushed to the front. The vehicles replaced open top soft skinned Land Rover 90/110 Defender XD Wolf Truck Utility Lightweight (TUL) and Truck Utility Medium (TUM) as patrol vehicles.



#### ABOVE...

The Mastiff 1 Protected Patrol Vehicle was the first of a series of vehicles based on the Cougar 6x6 MRAP manufactured by Force Protection Incorporated that was procured by the British MoD in order to fulfill an Urgent Operational Requirement issued by forces deployed to Iraq and Afghanistan to replace the CAV 100 Land Rover Snatch and the Pinzgauer 6x6 Vector Protected Patrol Vehicle.

#### ABOVE...

In order to replace a part of the fleet of CAV 100 Land Rover Snatch the MoD procured a total of 280 Pinzgauer 6x6 Vector Protected Patrol Vehicles (PPV) between 2006 and 2009.



#### LEFT & RIGHT...

The FV510 Warrior AIFV has seen widespread combat service, including the 1991 Gulf War, Bosnia from 1992 onwards, with British KFOR forces in Kosovo from 1999 onwards, during Operation Telic in Iraq from 2003 onwards and with the British ISAF contingent in Afghanistan since 2007.



## CAV 100 LAND ROVER

While offering much more protection than the soft skinned Land Rovers they replaced, the CAV 100 Land Rover Snatches could not stop the IEDs used by the Iraqi insurgents. The vehicles had been designed to protect soldiers on the streets of Northern Ireland from the effects of nail bombs and small arms fire but were not built to withstand blasts of IEDs sometimes containing several kilograms of high explosives. The CAV 100 Land Rover Snatch deployed initially in 2004 were desertised under project "Chile" which involved fitting air conditioning and the Saab Barracuda Mobile Camouflage System (MCS), the



converted vehicles were called CAV 100 Land Rover Snatch 1.5. Later the CAV 100 Land Rover Snatch 2 was fielded that officially was known as TUM (HS) Vehicle Protection Kit and among other modifications featured a reinforced chassis and a 300 Tdi engine. CAV 100 Land Rover Snatch 1.5 and CAV 100 Land Rover Snatch 2 both were fitted with an electronic counter measure system in order to protect them from the RCIED threat. Our pictures show CAV 100 Land Rover Snatch 2 pictured while on patrol in different cities of southern Iraq.

Additional force reductions followed, resulting in a number of 8,600 deployed troops from May 2004 onwards, 7,200 troops from May 2006 onwards, 5,500 troops from May 2007 onwards and 4,100 troops from May 2008 onwards. From January 2010 onwards only a small body of 150 troops belonging to the Iraqi Training and Advisory Mission (Navy) remained deployed. The costs of British operations in Iraq were paid by funds from the Treasury Special Reserve and amounted to £8,162M. With small exceptions the bulk of the British troops was operating in

southern Iraq all the time, where the cities of Basra and al-Amara are situated among others.

## DESERT INSURGENCY

Only weeks after the initial invasion of Iraq was completed the conflict turned into a bloody guerilla war in which groups of Sunni insurgents loyal to Saddam Hussein began to target the allied forces. Shia militias, such as the Mahdi Army of Muqtad\_al-\_adr joined the fight in order to achieve their own goal of an Iraq governed by Shiites.

Terrorist groups such as Al-Qaeda also entered the conflict, using the

opportunity to continue their Jihad against the "western crusaders." In addition to targeting the allied forces the insurgents and terrorists also targeted the elements of the newly raised Iraqi Security Forces and even the civilian population of other ethnicities or Iraqis following other orientations of the Islam religion or even different religions. On top of all, the different groups also fought each other.

However, the insurgents rarely fought in the open, knowing full well that in an open fight they would be quickly put down. Instead they limited their activities mainly to ambushes, hit and run missions, indirect fire attacks with mortars and unguided rockets and the planting of Improvised Explosive Devices (IEDs). Most of the insurgent attacks aimed at the allied forces were directed against patrols, supply convoys and bases, literally leaving no rest and recreation space for the troops. As a result of this forces such as logistic assets, who in a conventional war would operate deep behind enemy lines and well out of harm's way, now saw themselves exposed to the enemy.

## RPG AND IED

A weapon of choice of the insurgents was the RPG-7 shoulder launched anti-tank weapon that can fire a range of different projectiles, including



## PINZGAUER 6X6 VECTOR PPV

The Pinzgauer 6x6 Vector PPV had been especially designed by BAE Systems and Armor Holdings to meet the requirement of the British Army for a lightweight PPV. The vehicle was designed



and placed in quantity production within nine months. Pinzgauer 6x6 Vector PPV was fielded configured as patrol vehicle, command vehicle and ambulance. The vehicle is powered by a Volkswagen 2.46-litre, 5-cylinder turbocharged EURO 3 diesel engine that develops 130hp at 4,500rpm, is connected to a four speed ZF automatic transmission and allows it to reach a top speed of 120km/h. The patrol vehicle variant features two roof mounted machine gun mounts that can be fitted either with a 5.56mm L110A1 MINIMI light machine gun or a 7.62mm x 51 L7A2 GPMG. In addition to the driver and vehicle commander the vehicle offers space for four more troops.



## SAXON

The AT105 Saxon was developed in the early 1980s as a wheeled armoured personnel carrier to transport infantry soldiers from the UK to Germany during the Cold War, providing troops with a certain degree of armour protection. In addition to an APC version different command post variants, an ambulance variant, an internal security vehicle variant and a recovery and repair vehicle variant were fielded. In Northern Ireland the AT105 Saxon internal security vehicle variant was successfully used for crowd and riot

control missions, however, after being rushed to Iraq in order to fulfill the urgent operational requirement for a protected patrol vehicle, it quickly became clear that the vehicle was not up to the role. The picture shows an AT105 Saxon ambulance that was seen in Basra in May 2006.



some featuring shaped charge warheads that could penetrate the armour of main battle tanks.

The longer the insurgency lasted, the more the insurgents employed IEDs of various kinds. In official terms an IED is "any device that is placed or fabricated in an improvised manner incorporating destructive or lethal components that is designed to kill, destroy or harass, it may incorporate military stores."

Victim Operated IEDs (VOIED) were for example planted along the sides of roads and activated with pressure plates, trip wires, pressure release systems and so on, IEDs that were set off by a trigger man hiding nearby using either an electrical command wire (CWIED – Command Wire IED) or any means of wireless method such as cell phones or radios (RCIED – Radio Controlled IED) were also common. Large and deeply buried IEDs were placed in the surface under roads and tracks to attack the undercarriage of vehicles.

Other forms of IEDs employed were Vehicle Borne IEDs (VBIED), which saw vehicles containing an IED parked on the side of the road and exploded by radio control or a timer. A Suicide

VBIED (SVBIED) is set off by an attacker staying in the vehicle and can also be directly driven into a target. Suicide bombers are wearing Suicide Vest IEDs (SVIED) to blow themselves and their target up. House Born IEDs are houses rigged up with explosives that are used as traps and blown up once the security forces have entered them.

Explosives used in IEDs in Iraq ranged from homemade stuff of debatable quality to high quality industrial material. Often IEDs were created out of ordnance such as mines, tank rounds and artillery shells. An extremely dangerous kind of Improvised Explosive Device deployed in Iraq was the Explosively Formed Penetrator (EFP) IED that is capable of piercing even thick armour. EFP IEDs incorporate an explosive charge with a milled metal plate usually made from copper which by the force of the charge reshapes into a projectile that is propelled into the direction of the target with a speed of roughly a thousand metres per second. The severity of the threat coming from EFP IEDs can be judged by the fact that a large proportion of the British troops killed in Iraq by IEDs were in fact victims of EFP IEDs.

## CONVENTIONAL VEHICLES

During the initial invasion of Iraq the British Armed Forces in Iraq operated a mixed fleet of wheeled and tracked vehicles ranging from the Land Rover 90/110 Defender XD Wolf Truck Utility Light (TUL) and Truck Utility Medium (TUM) across the Combat Vehicle Reconnaissance (Tracked) (CVR(T)) range and the FV510 Warrior Armoured Infantry Fighting Vehicle to the Challenger 2 Main Battle Tank. All of these vehicles had in common that they had been originally designed



## MASTIFF PPV

First Mastiff 1 PPVs were ordered by the MoD in August 2006. According to information given by the British MoD the development of the Mastiff PPV out of the Cougar 6x6 MRAP, the procurement of the first vehicles, their modification and the delivery of the first vehicles to the field was achieved in about 6 months. After being manufactured by Force Protection Incorporated in the U.S.A. the Cougar 6x6 MRAPs were shipped to England. Here NP Aerospace Limited of Coventry converted them into Mastiff 1 PPV. During this process some 50 modifications were carried out on the vehicles, including mounting passive appliqué armour and Enhanced Protection Bar Armour (EPBA). Directly after leaving the factory

the vehicles then were shipped to the operational theatres in Iraq and Afghanistan and were fielded in Iraq from December 2006 onwards. The chassis of the Mastiff 1 PPV consists of a capsuled monocoque with a V-shaped deflector to provide the crew greatest possible protection from the effects of explosions as well as from small arms fire. By fitting a spill liner and the Light Appliqué Armour System Technology (LAST) developed by Foster Miller into the monocoque the protection for the crew is further increased. The crew of the vehicle consists of the driver and vehicle commander and up to six additional troops.

The Mastiff 1 PPV is powered by a Caterpillar-7 7.2-litre 6-cylinder turbocharged diesel engine, coupled to an Allison 3500 SP automatic transmission. On the roof of the Mastiff PPV is a machine gun ring mount, which can be fitted with a variety of weapons. The armour running around the ring mount acts as a gun shield protecting the machine gunner from the effects of enemy fire. Mastiff 1 PPV operated in Iraq have been fitted with a mesh wire enclosure covered with camouflage netting, protecting the gunner from the sun as well as obscuring his silhouette, making him less of a target for enemy snipers.



## FV432 MK3 BULLDOG

The FV432 Mk3 Bulldog Armoured Personnel Carrier is the newest vehicle of the FV430 vehicle family. Development of the FV430 family dates back to the fifties and between 1962 and 1971 some 3,000 vehicles of the family were built for the British Army, the bulk of them being FV432 Armoured Personnel Carriers in different configurations. Delays in the process of finding a successor for the FV432 Mk2 APC led to a service life extension programme under which

the vehicles were fitted with a new Cummins 6-cylinder turbocharged diesel engine that develops 250hp and an Allison x-200-4C four speed fully automatic transmission with integral hydrostatically controlled differential steering. The cooling system of the vehicle was replaced with a new one and the driver tillers were replaced with a yoke. In July 2006 the British MoD announced that for the deployment to Iraq and Afghanistan 117 FV432 Mk3 would be further

modified in order to increase their survivability and lethality. As part of the modification the vehicles were fitted with a version of the ASPRO-HMT appliqué armour that features passive and explosive reactive armour elements. They were also fitted with an electronic counter measure system in order to protect the vehicles from the RCIED threat, the Barracuda Mobile Camouflage System (MCS) and the Indirect Vision System (IVS) as an aid to improve the visibility for the driver.

To increase lethality the bulk of the FV432 Mk3 were fitted with the Enforcer RCWS. Vehicles with special functions such as ambulances and command vehicles were fitted with the armour protected Platt MR550 MG turret instead of the Enforcer RCWS. The vehicles so modified were now called FV432 Mk3 "Bulldog." The pictures show FV432 Mk3 Bulldog in the variants fitted with Platt MR550 MG turret and the Enforcer RCWS.



mainly for conventional war fighting in Western Europe. As a result of this many of the vehicles had to be modified for operations in the hot and dry climate of the Iraqi desert, for example by fitting new air filters and improved cooling systems.

In case of combat vehicles such as the FV510 Warrior Armoured Infantry Fighting Vehicles or the Challenger 2 Main Battle Tanks the

vehicles were also fitted with add-on armour packages to improve their survivability. When the insurgency began to kick off in Iraq during the summer of 2003 it soon became clear that this fight could not be fought with the deployed vehicles without modifying them further, especially as most of the fighting took part in the heavily populated urban areas of Iraq. Here in addition to the IED threat a 360° threat existed for the vehicles, including for example attacks from above with RPG-7s from rooftops. One capability gap that soon was discovered was the lack of a suitably protected patrol vehicle. It was also clear that measures had to be taken in the field of IED protection.

### VEHICLE UPGRADING

In a first attempt to equip the forces deployed to Iraq with suitable protected patrol vehicles modified CAV 100 Land Rover Snatch and

AT105 Saxon wheeled armoured patrol vehicles were rushed to the front. Simultaneously soft skinned vehicles such as Foden IMMLC DROPS trucks and so on were fitted with ad-hoc designed add-on armour packages such as the Webley Eagle Armour manufactured by NP Aerospace Limited.

Combat vehicles such as the Combat Vehicle Reconnaissance (Tracked) (CVR(T)) range, the FV510 Warrior AIFV and the Challenger 2 MBT were repeatedly fitted with new add-on armour packages over the years in order to increase their survivability. These packages included passive armour, incorporating stand-off armour, reactive armour and underbelly protection. In addition various combat vehicles were fitted with electronic counter measure systems in order to allow their crews to neutralise the threat from RCIEDs.

In some cases improving the

## CHARRV

The British Army fields the Challenger Armoured Repair and Recovery Vehicle (CHARRV) based on the chassis of the FV4030/4 Challenger 1 MBT. The CHARRVs are operated by the Light Aid Detachments of the Royal Electrical and Mechanical Engineers (REME) assigned to the armoured regiments, artillery regiments and engineer regiments of the British Army. Additional CHARRV see service with REME battalions. The CHARRV has a combat weight of 61,200kg, and the crew consists of the driver, the vehicle commander, the radio operator and two additional mechanics. The recovery equipment of the CHARRV includes a Rotzler Treibmatic main winch with a usable rope length of 150m and a maximum pull capacity of 51 tons. In addition the vehicle is equipped



with an auxiliary winch with a pull capacity of 15 tons and a usable rope length of 300m. An ATLAS AK6000M8 hydraulic crane with a lift capacity of 6.5 tons allows the vehicle crew to lift heavy pieces of kit such as the power pack of a Challenger 2 Main Battle Tank. While being deployed many times before, under Operation Telic the CHARRV were fitted with add-on armour packages for the



first time. The vehicles were initially fitted with Enhanced Protection Bar Armour (EPBA) in 2004. In 2007 parts of the EPBA were removed along the sides of the hull of the vehicles and replaced by the same Explosive Reactive Armour fitted to the FV510 Warrior AIFV and the FV432 Mk3 Bulldog APC.

## CVR(T) FAMILY

The Combat Vehicle Reconnaissance (Tracked) vehicle family has been in service with the British Army since 1972 and according to a House of Commons Report from 2006 a total 1,226 vehicles of the CVR(T) family were still serving at that time. While some of the vehicle variants of the CVR(T) family have been taken out of service, the following were still deployed to Iraq under Operation Telic: FV103 Spartan CVR(T) Armoured Personnel Carrier, FV104 Samaritan CVR(T) Ambulance, FV105 Sultan CVR(T) Command Post



Vehicle, FV106 Samson CVR(T) Armoured Recovery Vehicle and FV107 Scimitar CVR(T) Reconnaissance Vehicle. The hull of the vehicles of the CVR(T) family features an armour made of welded aluminium. The front of the vehicles offers protection against 14.5mm armour piercing rounds while the rest of the hull offers protection against 7.62mm armour piercing rounds. Despite the fact that vehicles of the CVR(T) family had been deployed with the British Army on operations worldwide

several times it was not before the 2002 that first measures were taken to improve their survivability. Back then ABRO fitted CVR(T)s with a mine protection kit based on experiences made in Bosnia and Kosovo. In 2003 prior to the start of Operation Telic FV103 Spartan CVR(T) APCs and FV107 Scimitar CVR(T) Reconnaissance Vehicle were fitted with an add-on armour package manufactured by Plasan-Sasa in Israel. From 2004 onwards the vehicles were also fitted with the Enhanced Protection Bar Armour (EPBA). Our pictures were taken in Iraq in May 2006 and show FV103 Spartan CVR(T) APCs and FV107 Scimitar CVR(T) Reconnaissance Vehicles fitted with the add-on armour package manufactured by Plasan-Sasa and the EPBA.

combat capabilities of the vehicles also prepared them better for fighting in built-up areas, for example by the installation of rear view cameras or the Enforcer Remote Controlled Weapon Station (RCWS). In many cases the funds for the modifications were generated out of the Urgent Operational Requirement (UOR) programme.

The Urgent Operational Requirement (UOR) programme exists to procure clothing, weapons, vehicles, aircraft and other equipment to close unforeseen capability gaps discovered during an operation in the shortest possible time. Funds required for this are not taken from

the defence budget but from a special budget of the Treasury. Procurements made under the UOR programme have the restriction that equipment procured reaches deployed troops in theatre in short time and must have a positive impact on the mission before it ends. Usually the equipment is supposed to be fielded within 6-8 months after the Urgent Statement of User Requirement (USUR) has been issued by deployed forces. If complex systems have to be procured or if the procurement requires complex integration work, fielding can take up to 18 months. Due to the limited time available, most UOR procurements use Commercial-Off-The-Shelf (COTS)



## CHALLENGER 2 MBT

Since it officially entered service in 1998 the Challenger 2 main battle tank has been the main weapon system of the armoured units of the British Army. Armament includes a 120mm L30A1 rifled high pressure tank gun, a coaxial 7.62mm x 51 L94A1 Chain Gun and a 7.62mm x 51 L7A2 GPMG mounted in front of the loader's cupola. The crew of the vehicle consists of the driver, gunner, loader and vehicle commander and the vehicle is powered by a Perkins Condor CV 12 TCA 1200 No 3, Mk 6A 12-cylinder V turbocharged diesel engine developing 1,200hp at 2,300rpm. The engine is coupled to a David Brown TN 54 No 2 Mk 1 automatic transmission with six forward and two reverse gears.

The MBT saw first combat action in with the British KFOR contingent in Kosovo from February 2000 onwards. For the Iraqi invasion the vehicles were not only fitted with the Dorchester Level 2E add-on armour package and friend/foe identification equipment, but also with a dust mitigation

package (including extended side skirts, front and rear spoiler skirts, improved air filters and fans and oil health monitoring equipment). During the insurgency only a few Challenger 2 MBTs remained deployed in Iraq of which some can be seen on these pictures. These vehicles were initially fitted with the early version of the Dorchester Level 2F add-on armour package that still incorporated the ROMOR-A explosive add-on armour installed at the front of the

vehicle. The Dorchester Level 2F add-on armour package also included passive add-on armour along the side of the turret and the hull and Enhanced Protection Bar Armour (EPBA) fitted to the rear of hull and turret.

By 2007 only 14 Challenger 2 MBTs remained in Iraq and the vehicles again had been heavily modified to increase their combat capabilities when deployed in urban terrain. The vehicles were now fitted with

later version of the Dorchester Level 2F add-on armour package that in contrast to the earlier Level 2E featured a new passive front armour that replaced the explosive reactive armour. Other modifications included fitting the Barracuda Mobile Camouflage System (MCS), installing the Enforcer remote-controlled weapon station (RCWS) on the turret roof and mounting the Caracal Single-Channel Driver's Night Vision System. Also fitted to the vehicles was an electronic counter measure system in order to protect them from the RCIED threat.



## WARRIOR IFV

Since the mid-1980s when the FV510 Warrior Armoured Infantry Fighting Vehicle (AIFV) first entered service the vehicle has become the main weapon system of the armoured infantry battalion of the British Army. The armament of the FV510 Warrior AIFV consists of a 30mm L21A1 Rarden cannon, a coaxial 7.62mm L94 A1 Chain Gun and a smoke grenade discharger system. The vehicle is powered by an air-cooled Perkins V-8 17.4-litre TCA turbocharged diesel engine that develops 550hp at 2,300rpm. The engine is coupled to a Perkins X-400-4B automatic transmission with four forward and two reverse gears and can reach a top



speed of 75km/h when travelling on roads. As for previous conflicts, for Operation Telic the deployed FV510 Warrior AIFV were fitted with a Chobham add-on armour package in order to increase their survivability. The passive add-on armour added protection to the front and sides of the hull of the vehicle. From 2005 onwards FV510 Warrior AIFV were fitted with the Enhanced Protection Bar Armour (EPBA) in addition to the Chobham add-on armour package in order to counter the growing RPG-7 threat. The EPBA is a stand-off armour and features panels with grilles of horizontal bars that are mounted about 500mm off the hull or Chobham armour. The FV510 Warrior AIFV were also fitted with an electronic counter measure system in order to protect them from the RCIED threat.

In order to further increase the survivability of the FV510 Warrior AIFV against RPG-7 warheads and EFP IEDs the vehicles deployed to Iraq were fitted with the WRAP 2 add-on armour package from late 2007 onwards. WRAP 2 stands for WarrioR Application Protection 2. While the previously installed Chobham add-on armour package and the Enhanced Protection Bar Armour (EPBA)



were passive add-on armour solutions, with the installation of WRAP 2 the FV510 Warrior AIFV was fitted with Explosive Reactive Armour (ERA) along the side of the hull for the first time. The ERA of the WRAP 2 add-on armour package is manufactured by RAFAEL Advanced Defence Systems Limited in Israel and according to the manufacturer the armour provides the vehicle with protection against RPG-7 projectiles, kinetic energy threats up to 14.5mm, armour piercing rounds and high-speed fragments. Like the FV510 Warrior AIFV other vehicles of the vehicle family such as the FV511 AIFV command vehicle variant were also fitted with WRAP 2.

or Military-Off-The-Shelf (MOTS) products. Equipment procured under the UOR programme enables British troops on deployment to react quickly and flexibly to changing threats.

## NEW VEHICLES

While the CAV 100 Land Rover Snatch had previously performed well during the troubles in Northern Ireland, saving many lives of British soldiers

from the effects of small arms fire and nail bombs, in Iraq it quickly became clear that the vehicles lacked the necessary protection level needed to survive the sometimes massive IEDs used by the insurgents. The Pinzgauer 6x6 Vector Protected Patrol Vehicle (PPV) that was procured to replace the CAV 100 Land Rover Snatch was no real improvement. While it offered a little bit more protection the weight of the armour had its impact on the mobility, cross country ability and reliability of the vehicle. Only when in late 2006 the first Mastiff 1 PPV procured under the UOR programme entered service did the British Armed Forces deployed to Iraq finally receive a vehicle that offered enough protection from insurgent attacks and IED strikes. Up to the end of Operation Telic the Mastiff 1 PPV together with the FV432 Mk3 "Bulldog" APC and the FV510 Warrior AIFV became the prime patrol vehicle in Iraq.



## WARRIOR RECOVERY

In addition to the FV510 Warrior AIFV the vehicle family includes a number of variants, which includes the FV512 Warrior Mechanised Combat Repair Vehicle (MCRV), shown here. The FV512 Warrior Mechanised Combat Repair Vehicle (MCRV) and an FV513 Warrior Mechanised Recovery Vehicle (Repair) (MRV (R)), both fitted with Enhanced Protection Bar Armour (EPBA) and deployed under Operation Telic in Iraq.



Installation of the EPBA to the vehicles was done in 2004. The pictures of the FV512 Warrior MCRV and a FV513 Warrior MRV (R) were both taken in January 2008, at this time the FV510 Warrior AIFV deployed to Iraq had already been fitted with the WRAP 2 add-on armour package, which was not installed on the recovery vehicle variants.

A hydraulically operated crane is situated to the rear on the left of the FV512 Warrior MCRV and the FV513 Warrior MRV(R), it is supported by a hydraulically actuated stabiliser leg, which is lowered during crane operations. The 6.5-ton capacity of the 360° traversable crane allows the recovery vehicles to lift and replace power packs. The FV513 Warrior MRV(R) is mostly identical with the FV512 Warrior MCRV. The main difference is



the hydraulically operated winch situated in the rear compartment of the vehicle. It has a capacity of 20-tonnes, which by double reeving the cable can be increased to 38-tonnes. The FV513 Warrior MRV(R) can be identified by the rear mounted earth anchor which, when lowered, provides additional support during recovery operations. Both recovery vehicles are fitted with a manually operated one-man turret fitted with a 7,62mm L94A1 Chain Gun.

**NEW**

# MILITARY VEHICLES COLLECTION

**A UNIQUE COLLECTION OF MODELS OF THE FINEST  
ARMoured FIGHTING VEHICLES OF WORLD WAR II.**

DIE-CAST QUALITY  
**1:43  
SCALE**  
PRECISION MODELS

**Only  
£12.99 per  
model**



This new collection of highly detailed models brings together some of the most iconic vehicles of World War II. Using an impressive 1:43 scale and made in die-cast quality metal and plastic, these precision models include the half-tracks, tanks, armoured and command vehicles that revolutionised modern warfare.

Each model is mounted on a named display base and protected by a crystal case.

**START COLLECTING NOW TO RECEIVE  
3 EXCLUSIVE GIFTS!**

**WORTH  
OVER £50**

**1**

SD.KFZ. 9FAMO

**2**

SD.ANH. 116

**3**

PZ.KPFW.IV AUSF.G

**GIFTS  
LINK UP**



50 cm long

**FOR MORE INFORMATION OR TO ORDER VISIT:  
[WWW.MILITARY-VEHICLES-COLLECTION.COM](http://WWW.MILITARY-VEHICLES-COLLECTION.COM)**



# Desert Crusaders

**WE TAKE A LOOK AT THE CRUSADER TANK IN SERVICE  
WITH THE BRITISH ARMY IN THE DESERT**

## **ABOVE...**

Crusader Mk II with the distinctive cast gun mantlet but missing the small auxiliary gun turret, which was often removed and plated over as it was of little use.  
(Photo – Tank Museum)

**A**s the war raged in the western desert the British Army used a wide range of vehicles, some of which were more suitable than others for desert warfare. Early on in the campaign the British tanks were woefully outgunned by the German tanks and anti-tank guns, which at that time mainly consisted of the Panzer III and IV, but as the war

progressed newer and more heavily armed tanks such as the Tiger 1 began to be introduced.

The Crusader tank was amongst the new tanks to be introduced by the British and was one of a range of Cruiser tanks produced in the early war period that took advantage of the then new Christie type suspension system. The Crusader entered service in 1941 with the first

consignment of the new Crusader Mk I tanks being supplied to the 6th Royal Tank Regiment who at that time were serving in the Middle East. A short time later, and with Crusader production in full swing, more tanks were shipped out to 22nd Armoured Brigade to bolster numbers in the desert, and went on to see widespread service in Tunisia and the battle of El Alamein with varying



degrees of success as well as the European theatre of operations.

Unfortunately the Crusader was dogged by a number of reliability problems throughout its service life, some of which were undoubtedly due to the extreme heat of the



#### LEFT...

An early Crusader, probably a Mk I as the small front turret is just visible, drives up on to the bed of a Scammell tank transporter's trailer. This vehicle is fitted with the wheel covers, giving the appearance of solid road wheels. (Photo – Tank Museum)

#### LEFT...

Another early Crusader fitted with the solid wheel covers seen here on a six-wheeled truck transporter. The truck looks to be an American White Ruxtall 922 18-ton 6x4. (Photo – Tank Museum)

#### BELOW...

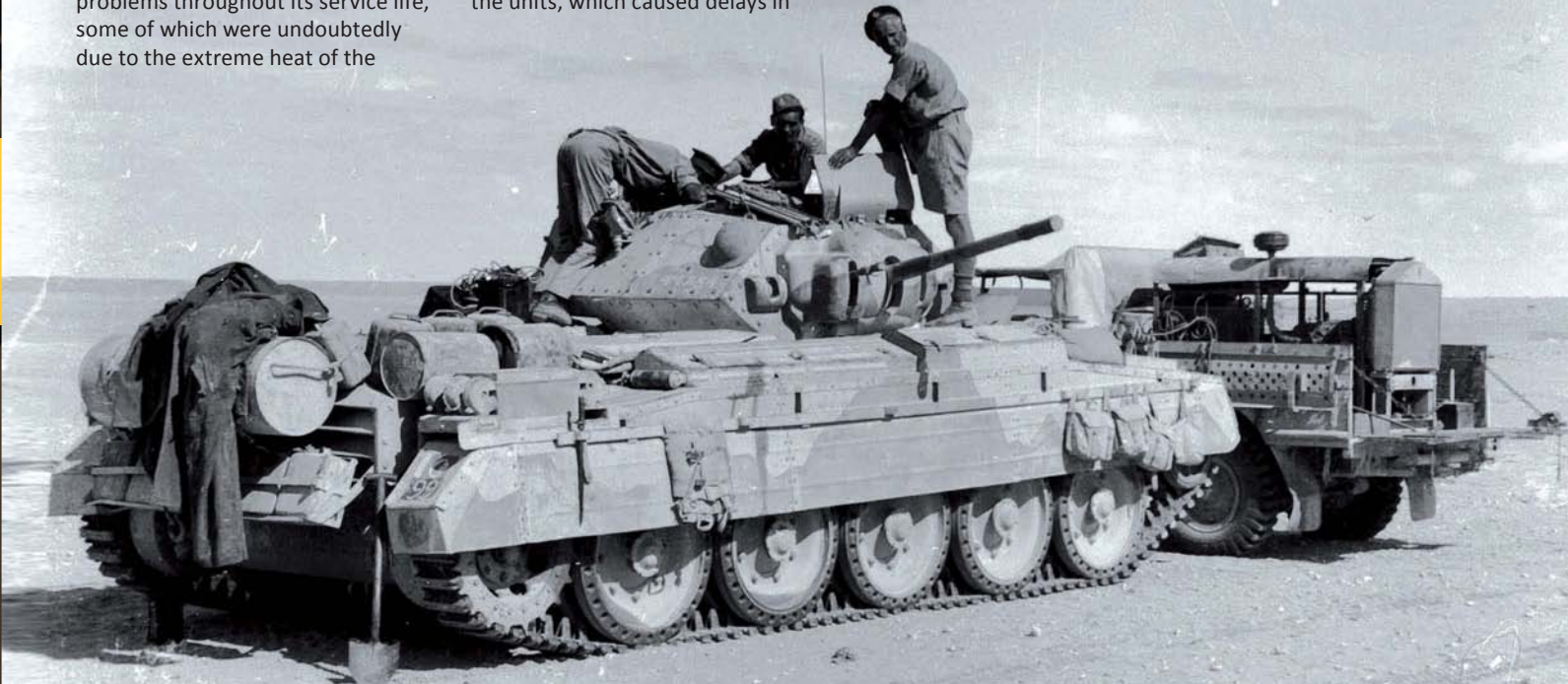
A Crusader Mk II undergoes some maintenance or repair in the desert. Note the field repair truck in front of the tank and the various items of stowage on the engine decking. (Photo – Tank Museum)



desert, but others were caused by poor preparation of the vehicles when shipping them out to the frontline that saw them exposed to the harsh and corrosive elements of the sea during the journey to the frontline. This resulted in corrosion damage from the salt water spray and meant that most of the tanks needed to be repaired and serviced by the base workshops in Alexandria before they could be passed on to the units, which caused delays in

getting the tanks to the battlefield, however, one of the main concerns was the way that the tanks were prone to catching fire when hit by the enemy.

It was always known that the armour on the Crusader was quite thin, especially when compared to their German counterparts, but despite this it was initially assumed that the petrol-powered

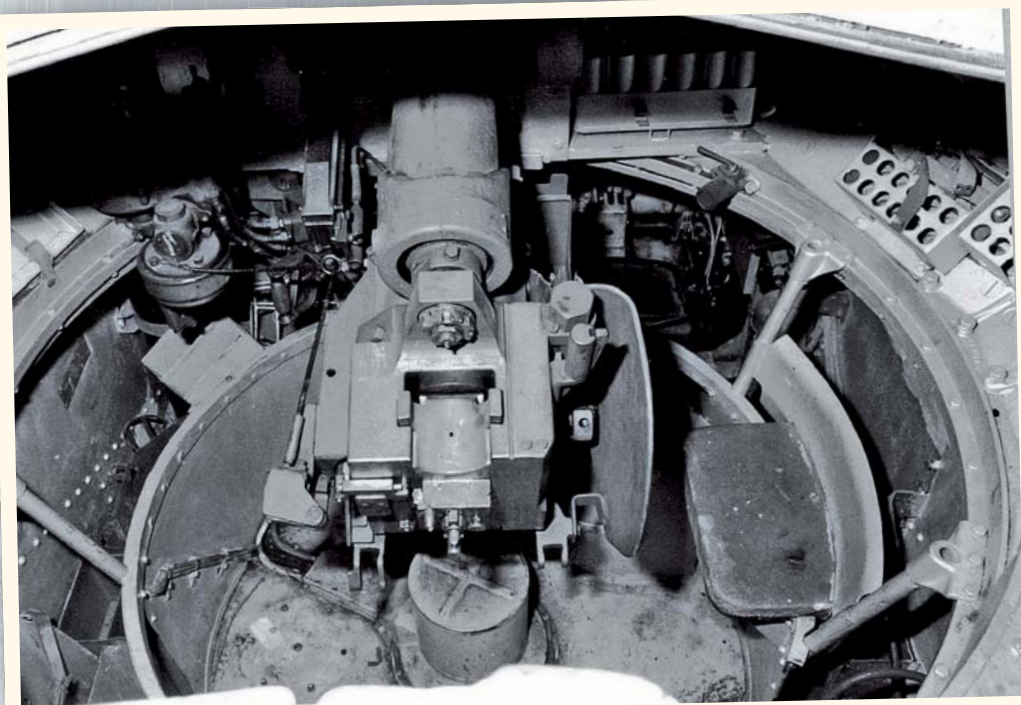
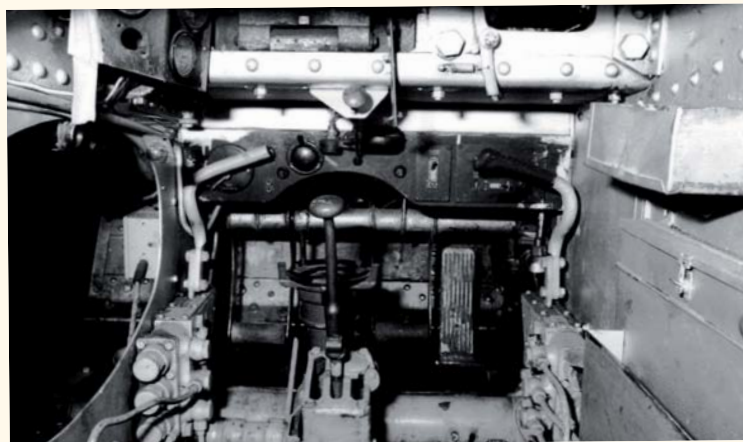


#### RIGHT...

View looking inside the driver's position of a Crusader Mk III. The two steering levers can be seen either side of the central gear stick. (Photo – Tank Museum)

#### BELOW...

View looking down inside the turret of a Crusader Mk III showing the gun breech, gunner's seat and turret basket. (Photo – Tank Museum)



#### BELOW...

Pluto 6, a Crusader II, pictured here in the western desert undergoing repairs. The canvas roof of a repair truck can just be seen to the far side of the tank. A seat from inside the tank is propped up to the side and an ammunition box has been attached to the side skirt for extra stowage. (Photo – Tank Museum)

tanks caught fire easily because of the type of fuel used, but further investigations revealed that the main cause was actually the cordite ammunition being used, which was stowed in unprotected racks within the hull interior and when the tank was hit, the hot metal fragments

would hit and ignite the ammunition with disastrous results.

The Crusader was an important vehicle in terms of British tank development, being relatively quick, reasonably well armoured (in comparison to the inter-war tanks) and with a lower profile than previous tanks, in fact the Crusader would ultimately go on to become one of Britain's 'Classic' wartime tanks despite its shortcomings.

The Crusader, like the Covenanter and some of the Cruiser family of tanks before it, incorporated steeply sloped turret armour to improve survivability by reducing the height of the vehicle, but also allowing shells to glance off the turret armour rather than detonating. Unfortunately the resulting undercut of the turret also created a shell trap and was the cause of the demise of many Crusaders during the war.

### PRODUCTION

It is often said that the Crusader tank was a development of the similar Covenanter tank, however, the Crusader was actually developed alongside the Covenanter as a separate design, and while it was loosely based on an enlarged design that incorporated a number of common components, it was very different having been based around a different engine, namely a modified version of the 27-litre Nuffield Liberty V12 petrol engine.

The Crusader was distinguished from the Covenanter by the addition of an extra road wheel on either side of the hull, increasing the number to five per side, although the overall dimensions of the two tanks changed little due to the road wheels being spaced more closely together than on the Covenanter. Early versions of the Crusader were often seen fitted with the same solid wheel covers first seen on the Covenanter, creating further confusion as to the



lineage of the Crusader and the initial prototype even incorporated a single, centrally located headlight, like the Covenant but was later replaced by twin headlights on production models.

The first version, the Crusader Mk I, was fitted with a small, hand operated circular auxiliary turret to the left of the driver that housed a Besa machine gun to supplement the 2-pounder main gun in the turret, but this turret was found to be less than successful, being too small and restrictive to be of any great use and a great many tanks had them removed with the aperture in the hull being plated over, or they were simply not used. The auxiliary turret was not included on the later marks of Crusader tank, but even so the fact that these turrets were often removed from earlier types can create confusion when trying to



#### LEFT...

A Crusader Mk II command tank is seen here fitted with a dummy gun sleeve to give the appearance of a 6-pounder and divert attention away from itself as a command tank. (Photo – Tank Museum)

#### BELOW...

The wide open spaces of the desert could see travelling columns of tanks being picked off from a long distance by enemy guns. In an effort to disguise the tanks some were fitted with frames fitted with a canvas to make them look like trucks. (Photo – Tank Museum)

#### BELOW...

In an effort to disguise the tanks some were fitted with frames fitted with a canvas to make them look like trucks. (Photo – Tank Museum)



identify specific types of Crusader in photographs.

The engine used in the Crusader was the powerful Nuffield Liberty V12 configuration petrol engine that developed 340bhp at 1500rpm. The engine certainly gave the tank a good turn of speed, but reliability and cooling problems relating to the method of construction caused all manner of problems when operating in the desert. The engine was not of conventional design and didn't have

#### BELOW...

This Crusader Mk II has been knocked out in fierce fighting during the desert campaign, the small auxiliary turret can be seen to the front of the vehicle on its side. (Photo – Tank Museum)





#### ABOVE...

Later marks of the Crusader saw the removal of the small auxiliary turret. The circular blanking plate can be seen to side of the driver's hatch.

#### ABOVE RIGHT...

The introduction of the Crusader saw an extra road wheel being added each side of the tank, bringing the number up to five rather than the four seen on early Cruiser tanks.

#### BELOW...

Rear three-quarter view of the Crusader III Cruiser tank Mk VI currently displayed at the Tank Museum and described as a fast but unreliable desert veteran.



#### RIGHT...

A familiar sight in the early part of the desert war – British Crusader tanks with their distinctive profile head across the desert. (Photo – Tank Museum)



it wasn't unusual for the auxiliary turret gunner to stand in the turret rather than operate the cramped turret on the early types.

A co-axial Besa machine gun was also mounted alongside the main gun in the turret, while the 2-pounder gun, which performed poorly against the German tanks, was later replaced by a 57mm/6-pounder in the Crusader Mk III. The introduction of the larger main gun also saw the distinctive cast gun mantlet of rounded form on the Mk I and Mk II replaced by a flat plate with a simple aperture for the main gun and co-axial machine gun. The single slide back roof hatch at the rear of the turret on the Mk I and Mk II was also replaced by twin lift up roof hatches on the Mk III Crusader.

The first production model entered service in 1941, but was soon replaced by the upgraded Mk II, which saw an increase in armour thickness over the Mk I, but retained the same inadequate 2-pounder main gun and little was done to improve the reliability of the tank, especially in terms of the overheating problems when operating in the desert.

There are very few ways to easily distinguish the Mk I from the Mk II Crusader, especially when the auxiliary turret was removed, however, by studying the front turret plate carefully it is possible to

identify the one from the other. To the left of the main gun was a small gunner's spy hole that had a small piece of coaming around it and on the Mk II it is virtually flush due to the addition of thicker armour plate, whereas on the Mk I the coaming stands proud.

Other identification points were the differences in the design of the side skirts, which on early Crusaders only covered a small portion of the forward running gear and some of the rear from around halfway back. On later models deeper, full-length side skirts were fitted, but having said all that it was common for the skirts to be removed from the vehicle completely depending on their condition and the terrain in which the tanks were being operated, thus confusing identification between the early marks.

Different types of air cleaner systems were used throughout production, which can be another way of determining the type of Crusader, assuming of course that they are visible in the photos in the first place. The later type is perhaps the most commonly seen and features sets of 'snail' type inlets either end of a rectangular box at the rear of the mudguards with a main pipe leading to the engine cover.





#### LEFT...

The Crusader Mk III was arguably the best of the Crusader family, but it often proved unreliable and was outgunned by the German panzers and soon replaced by the American Sherman tank.

#### BELOW LEFT...

Stowage space for the crew's kit was always at a premium in a tank and this additional stowage bin was added to the rear of the Crusader tank. The aerial mount and searchlight can also be seen in this view of the Crusader III at the Tank Museum.



#### END OF LIFE

Despite the fact that around 5,300 Crusaders were built during WW2, it was quickly phased out of frontline service in favour of the newer American Sherman tanks that were being supplied due to ongoing reliability issues with the Crusaders,

and the fielding of the new Tiger 1 tank by the Germans.

Even after being removed from service the Crusaders went on to be adapted and used for a number of other roles, such as anti-aircraft tanks with new, purpose-designed turrets as well as turretless gun tractors and engineer vehicles such as the Armoured Recovery Vehicle



and the Crusader dozer. Numerous prototypes were built, but only a few of the ideas ever reached production.

While not a huge success in service, the Crusader was undoubtedly an important tank at a key point in the war and saw sterling service. Today there are a few preserved examples to be found in various museums around the world, with our very own Tank Museum home to a Mk III model.

#### ABOVE...

The only other place I have seen a preserved example of the Crusader in recent years is IWM Duxford. This photo was taken at one of their military vehicle shows some years ago and offered a rare chance to see this early Crusader outdoors.



# SAS in the Gulf

The first Gulf War saw Britain's Special Forces taking a frontline role and we take a look at some of the vehicles they used



## ABOVE...

There are very few genuine SAS Land Rover DPVs in private hands, but this is one of them, belonging to collector Barry Pocock.

With the exception of tales of daring raids in North Africa and Europe during the Second World War, little was heard of Britain's Special Air Service in the 60s and 70s, with the regiment keeping a very low profile, drawing a veil of secrecy over their operations that was rarely penetrated. The Iranian Embassy siege in 1980 changed that perception

and suddenly saw the SAS thrust into the limelight as television crews from around the world captured the assault on film, immediately raising the profile of the regiment. Since then the exploits on that day have been immortalized many times in documentaries, books, artwork and even model figures, raising the SAS Regiment to cult status.

Although numerous operations

continued over the ensuing years, little would be heard of the SAS until the outbreak of the first Gulf War. Saddam Hussein's use of mobile Scud missile launchers to target Israel in an attempt to drag them into the conflict and destabilize the alliance saw top priority being given to the hunting of these mobile launchers. Initially the RAF and army had no luck in tracking them down and as the situation



with Israel deteriorated as attacks continued, it was decided to deploy Britain's Special Air Service into the desert on the now legendary Scud hunting missions.

Those missions have since gone down in history, and like the Iranian siege, have been recounted many times in numerous books and articles over the years since. Occasionally a few grainy photos would accompany these written accounts, providing readers with a rare glimpse into the clandestine world of the SAS, and for military vehicle enthusiasts, occasionally offered rare images of the vehicles used by those units.

In this feature we are taking a look at a few of the main types of vehicles deployed during those operations, such as the Land Rover Desert Patrol Vehicles, Longline Light Strike Vehicles, Mercedes Unimogs and motorcycles. Of course many other vehicles were pressed into service to meet specific needs, such as quad bikes and the stripped down Bedford 4-tonne resupply trucks, but we will be concentrating on the main types in use, using a selection of rare images taken during the build up to those Scud busting operations.

#### ABOVE LEFT...

This is the other DPV in private hands, which was rebuilt some years ago as the vehicle itself was badly damaged resulting in its disposal.

#### ABOVE RIGHT...

There are a number of Light Strike Vehicles in private hands, but this Mk2 4WD variant is a genuine ex-Gulf War example finished in the sand and grey camouflage adopted for operations in the Gulf.

#### RIGHT...

It was mobile Scud missile launchers such as this that were creating havoc in the desert and caused the SAS to be sent in to seek them out.

#### BELOW RIGHT...

Another Light Strike Vehicle, this time a 2WD variant, although externally it is quite difficult to tell the two types apart.

#### BOTTOM RIGHT...

The predecessor to the Desert Patrol Vehicle was the Series IIA Pink Panther, also built by Marshall's of Cambridge.

#### BELOW...

Later in life the DPVs were modified to incorporate a WMIK-style full-length roll cage and overhead ring mount, this vehicle is in the Dunsfold Collection.



### RIGHT...

Typical of the heavily laden Land Rover DPVs used in the Gulf. The two spare wheels are clear to see, as are the front bumper mounted smoke dischargers and front GPMG.

### BELOW...

Crews rest between training. Each vehicle carried standard equipment, but would often be tailored to suit the needs of specific crews.

### BOTTOM...

Here we see no less than eight of the DPVs parked up during a break in training prior to setting off for the Scud hunting missions.



## LAND ROVER DPV

Until the advent of the Gulf War, the SAS had mainly been linked with the famous 'Pink Panther' Series IIA Land Rovers used for long range, deep penetration operations behind enemy lines, especially in the desert. Few in-service images of the Pink Panther existed and even now

photos are hard to come by, and yet the type had been replicated as a plastic model by Japanese company Tamiya, writing the curious pink-painted Land Rover into SAS history.

The association of the Land Rover marquee with the SAS continued with the introduction of the Land Rover Desert Patrol Vehicle, which was based on the V8-powered 110 high capacity chassis, with numerous modifications and additions carried out by Marshall's of Cambridge, the builders of the original Pink Panthers. The new DPV featured front and rear heavy duty Salisbury axles and suspension, additional fuel tanks, underbody protection, navigation equipment, front and rear gun mounts capable of accepting a variety of heavy weapons such as the GPMG, .50 cal HMG and Milan missile launcher, four banks of smoke dischargers and a wide variety of stowage lockers and bins for the many items of specialist equipment carried on the vehicle.

To aid rapid deployment the roof and doors were left off the vehicle and the commander or front gunner was given a raised seat for better positioning behind the forward facing weapon. A seat was mounted on a full width box in the rear immediately behind the seat bulkhead for the rear gunner, and stowage bins either side of the cab mounted on the sills carried a total of four water cans while additional racking inside the front and rear compartments carried additional fuel cans, ammunition, radios and assorted equipment. Two spare wheels were also carried, one on the bonnet and one mounted to the side of the rear body.

While a few rare photos exist of the Land Rover DPVs in the desert during the Gulf War, most were taken during the training in the build up to operations, and the images shown here were taken during that last minute training and preparation in the Trucial States and show them at their base there, which followers of the regiment may well recognise as being the same location for the famous regimental group shots of the men and their machines before they headed out into the desert.

Also shown here are photos of the two Land Rover DPVs belonging to collector Barry Pocock. These two examples are the only two genuine vehicles of this type of DPV in private hands, although there are numerous replicas to be found at shows. A later variant of the DPV fitted with a WMIK type extended roll cage and overhead ringmount is also shown, which is now part of the Dunsfold Collection. This later type was famously photographed during Operation Barras, the SAS mission in Sierra Leone to rescue captured British soldiers in 2000, with the type spotted working alongside Wolf WMIK Land Rovers of the Paras and is essentially an upgraded version of the earlier DPV type used in the Gulf.





## LIGHT STRIKE VEHICLE

The sending of the Light Strike Vehicles built by British company Longline (latterly Ricardo) was something of a last minute decision with the LSVs being ordered prior to the Gulf War as part of a UOR (Urgent Operational Requirement), however, the time spent in the Gulf turned into more of a field testing session than actual combat use, which was partly due to the vehicles being rushed into service.

It was found that the light, space frame buggies were too fragile and unable to carry the equipment necessary for extended missions behind enemy lines and following exhaustive training the crews decided to leave them behind, favouring the larger Land Rover DPVs.

This last minute decision could explain the regiment's acquisition of a number of Land Rover 90 based patrol vehicles to supplement the larger 110 DPVs. The small 90 desert patrol vehicles would go on to be nicknamed 'Dinkys' in deference to the larger 'Pinkies' as the new 110 DPVs were known, referring to the older Pink Panthers.

The LSV featured a space frame chassis and rear mounted, 1.9-litre water-cooled VW engine from a VW transporter van. The first four vehicles built were 2WD, with the next five vehicles featuring a 4WD system to aid traction. In actual fact, having spoken with veterans from the Gulf War who tested these vehicles prior to operations, the 2WD variant was preferred, and could well explain why the similar Chenoweth FAV used American Special Forces are also 2WD in layout.

Stowage was provided above the engine and in side baskets incorporated into the space frame design, and a weapon mount above the passenger on the right hand side accepted a standard gun mount, which in the case of those vehicles used in the Gulf, was a Vinghog soft mount fitted with a .50 cal heavy machine gun.

While the concept of the fast attack vehicle was sound enough, the design and construction of the Longline LSV was far from perfect. The choice of engine was less than ideal for desert operations, while the extreme terrain that was breaking even the heavy duty Land Rovers

### ABOVE...

A pair of LSV are seen here, but note the Land Rover to the left and the palm trees, which are also visible in the background of the famous Regimental group shot taken in the Gulf just prior to operations, and therefore would suggest this photo was taken around the same time.

### BELOW...

Rare shot of an in-service Mk2 4WD Longline Light Strike Vehicle. The vehicle is fitted with a Vinghog soft mount, but the .50 cal it normally holds is not present.



was too much for the relatively fragile suspension to cope with, and it was this lack of reliability coupled to a lack of payload that resulted in the LSVs being left behind when operations began in earnest.



### ABOVE...

To supplement the Hondas, around twenty KTM 350 motorcycles were purchases as a UOR.

## MOTORCYCLES

Two different types of motorcycles were used during the Gulf War, their role being to act as outriders and scouts for the mobile units. The Honda XR250 was the main type in use at the time, being well liked by the unit and gaining a reputation

### BELOW...

After the Gulf some Ex-SAS XR250s found their way into private hands, such as this genuine ex-Gulf War example.



for ruggedness and reliability. Some were modified and fitted with off-the-shelf Acerbis long-range fuel tanks, but all were given a coat of sand coloured paint, a rear stowage rack and small zipped compartment for tools and smaller items.

The other type used by the SAS during the Gulf was the larger engined KTM 350, a much more 'hardcore' trials type bike, of which around twenty were acquired from a specialist dealer based close to Hereford prior to the Gulf War as part of an UOR (Urgent Operational Requirement) to supplement the Hondas already in use. Like the Hondas, some were fitted with long-range fuel tanks and various racks and stowage pouches.

A number of these ex-Gulf motorcycles have passed into private hands and today they are often seen at military vehicles shows up and down the country.



#### ABOVE...

The Honda XR250 was the favoured motorcycle at the time. This example has the standard fuel tank, but note the zipped pouch at the rear.

## UNIMOG

The Mercedes Unimogs used by the SAS during operations in the first Gulf War were less of an offensive vehicle and more of a support vehicle, acting as 'mother ships', carrying additional equipment and vehicle spares. Even so the Unimogs were adapted to carry machine guns for self-defence, or if necessary for attack. Although notoriously difficult to positively identify the type, the variant of Unimog appears to be a soft top U416, long wheelbase agricultural specification vehicle, with the roof and doors removed in line with other SAS vehicles and a commonly used vehicle with armies right around the world in one form or another. What appears to be a rudimentary skate rail was added to the rear load bed just behind the



cab on some, but not all Unimogs serving in the Gulf, with the assumed purpose of mounting a machine gun. A standard raised air intake was also fitted for deep wading.

Few photos of these rare vehicles exist, but all seem to show them heavily laden with all manner of equipment and clearly operating

behind enemy lines. The photos in which the Unimogs are shown here are taken during the build up to the behind the lines operations and the vehicle shown does not appear to have the skate rail fitted, but is heavily laden with supplies. To the best of my knowledge there are no ex-SAS Unimogs in private hands.

#### LEFT...

Crews are briefed prior to heading out on operations. To the right of the LSV in the centre of the photo is one of the rarely seen Unimog 'Mother Ships', clearly full of spares and supplies.

#### BELOW...

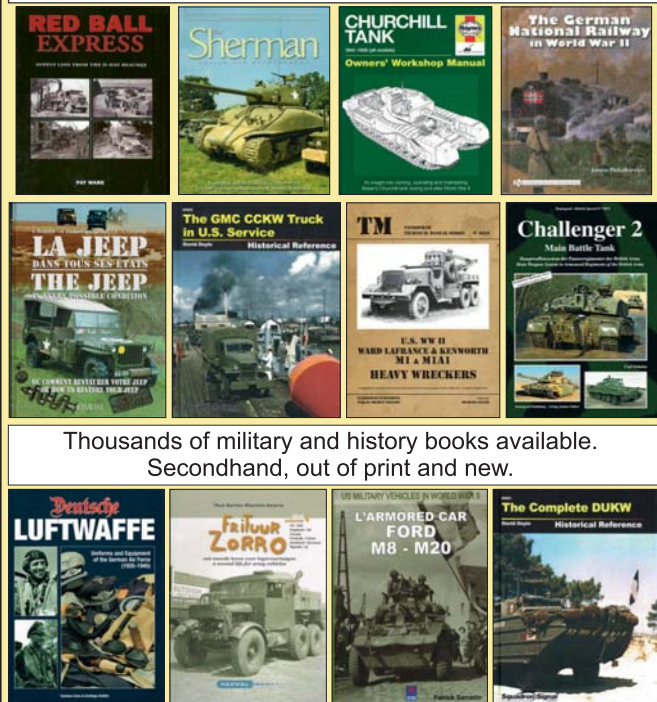
Another rare shot of an SAS Unimog parked behind an LSV with a pair of motorcycle outriders to the side, a number of Land Rover DPVs parked up and a Chinook helicopter in the background.



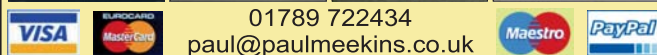
# Paul Meekins

MILITARY & HISTORY BOOKS

[www.paulmeekins.co.uk](http://www.paulmeekins.co.uk)



Thousands of military and history books available.  
Secondhand, out of print and new.



## CHOCs FOR CHAPS™

AMMO YOU CAN EAT



M36JB 'MILLS BOMB'

FULL SIZE

JELLY BEAN FILLED

**BELGIAN  
CHOCOLATE**

Full size replica  
ammo made from high  
quality Belgian  
chocolate.

Wholesale  
enquires also  
welcome.



[WWW.CHOCsFORCHAPS.COM](http://WWW.CHOCsFORCHAPS.COM)

—BUY ONLINE—

# TheSovietRussia.com

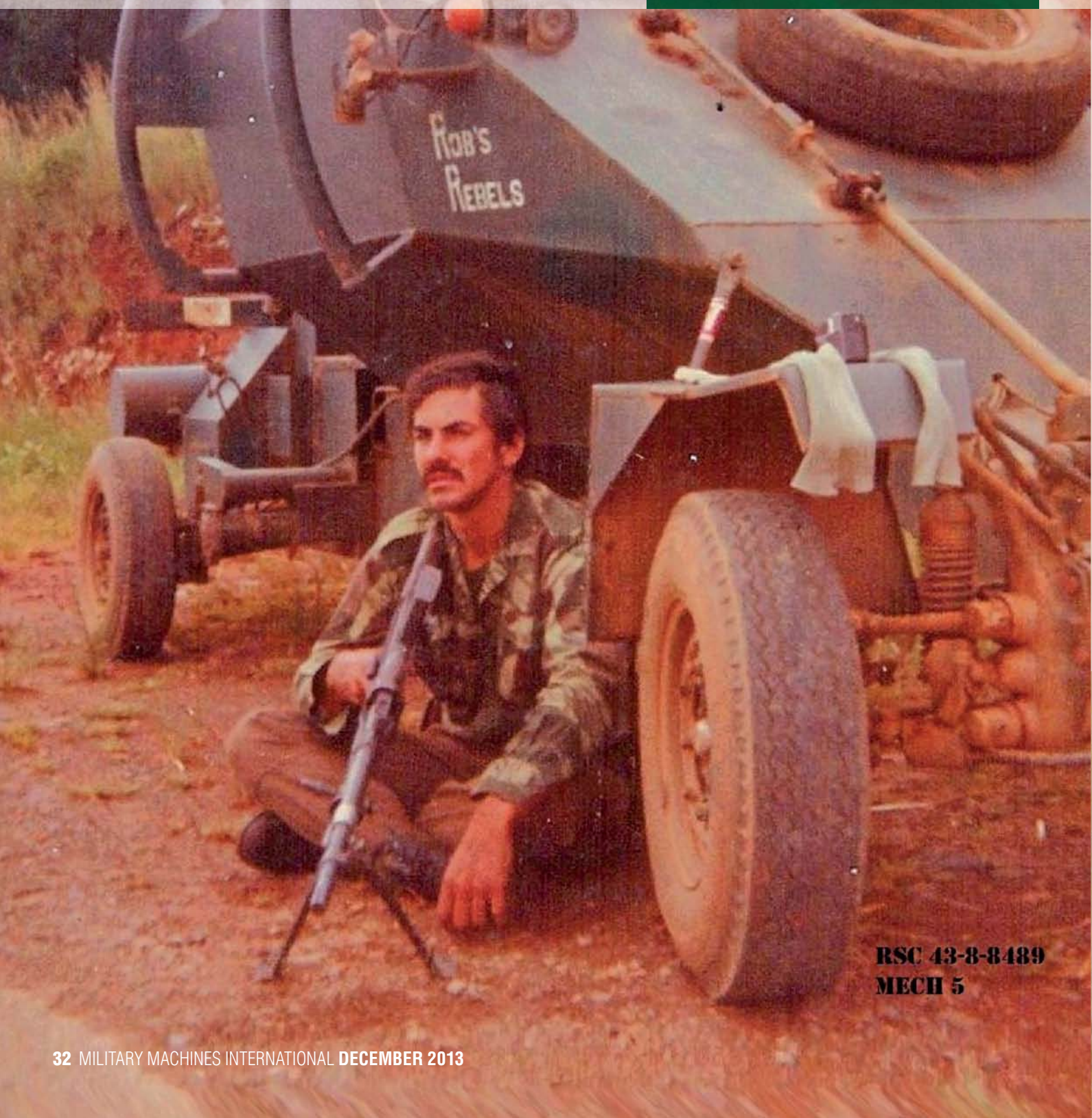
is a supplier of Soviet and  
Russian army, military surplus.  
Here you can buy uniforms,  
camouflage camo clothing,  
caps, ushanka fur hats,  
gas masks, belts, badges,

patches, other navy, vdv, spetsnaz  
(special forces) tactical combat gear for  
airsoft, paintball, reenactment, hiking,  
other outdoor activities, costume party,  
fancy dress, historical theater plays.  
Souvenirs, collectibles for great  
Russian gift ideas.



# Rhodesian Mine Protected Vehicles

FORMER SOLDIER  
**CMDR ROBERT**  
**'FLAT DOG' CEDARS**  
LOOKS AT SPECIALIST  
MILITARY VEHICLES  
USED IN WAR TORN  
RHODESIA



**RSC 43-8-8489**  
**MECH 5**



#### ABOVE...

The bullet tumblers give the Kudu a distinct appearance. This design and body could be fitted to a long wheelbase Land Rover or Nissan 4x4 chassis or extended to fit a two and a half ton dump truck, adding greater versatility to meet civilian and military requirements.

#### LEFT...

The author seen here with a Leopard mine protected vehicle while on convoy security escort duties. Designed by Ernest Konschel, it was the first monocoque vehicle produced as a cost-effective, life saving anti-mine protective vehicle. By projecting the wheels away from the body the land mine blast would shear off the wheels leaving the occupants virtually unharmed. Powered by a Volkswagen 1600cc combi motor the transmission gears were specially made in Rhodesia to accommodate the weight at the required speed.



#### ABOVE LEFT...

This vintage Panhard AML scout car was primarily used as a scout car and was a welcoming sight anywhere any time except to the freedom fighters! They were the vanguard and backbone of the Rhodesian armoured unit.

#### ABOVE RIGHT...

The Chipinga Hotel on Main Street with adapted Land Rovers parked outside. The long wheelbase version is equipped with 12-gauge pipe cannons that can be fired when released by the driver. The pipes fall on a fixed firing pin that fires the shot gun shell in a fan pattern, which was very effective in close-up ambushes and frightening to the attackers that did survive.



Where does one start with the history of war in Africa? After a few centuries of Colonialism, the introduction to industrial technology, medical health improvements, mass farming techniques and well meaning theologians educating indigenous local tribes, social evolution took a turn and very soon traditional spears and poison arrows were replaced with landmines and guns.

A few European educated tribal leaders learned that liberation movements in the name of freedom were a means to their own personal wealth and power. To the illiterate naive tribesman with just a thin

veneer of modern civilization, the promise of utopia and freedom to whatever he desired would be there for the taking.

At the time Presidents Kennedy and Johnson had their hands full in Vietnam, while Europe seemed to be on the verge of WW3 with the threat from the Iron Curtain and Warsaw Pact States, leaving Nikita Krushchev and Aleksei Kosygin free rein to destabilize a third world undeveloped African country. When their supported faction got the upper hand the Soviets simply deployed under the pretence of an invited armed force. Without any consideration of who financially supplied the modern logistics and weapons, the Western



#### ABOVE...

A Crocodile armoured body adapted to an Isuzu 5-ton dump truck. In standard configuration an FN 7.62 MAG is mounted near the driver's cab with harnessed bench seats centered for troopers facing sideways so they could return fire from side ports. The author (Commander), based on his experience, insisted on having the bench taken out and replaced by custom designed seats so the heads of the security guard gunner and assistant were above the armour for 360 degree observation and less likely to fall asleep during the long convoy haul. He requested his commander's seat as same, and following a previous land mine injury, had the interior edges lined with carpet.

#### BELOW...

One of five liberated new soviet T-55 tanks being taken out on a joy ride by the Rhodesian Light Infantry.





### ABOVE...

A young boy poses in front of Rhodesia Jersey tea estate staff vehicles with his toy. The Land Rover on the left is fitted with blast and bullet deflectors. For added anti-ambush protection pipe cannons are mounted above cab. On the right the ungainly ugly Armadillo with a complete armoured capsule placed on a Land Rover chassis with roll bars and blast deflectors.

### LEFT...

This later version of the Hyena with a canvas roof to reduced high pressure areas from a land mine blast and is fitted with bullet and RPG screens. A troop carrying Hyena with V-shaped hull was very effective and mounted on a Bedford RL chassis.

French and Belgian Foreign Legion paras, but the ensuing blood bath could not be contained for any length of time and like clockwork every 6 to 8 months another communist backed tribal faction rebellion would flare up. The Northern Confederate State of Rhodesia, now Zambia, saw the refugees pouring in from the Congo with survivors relating horrific stories of atrocities and by then it was clear to the Rhodesians that it was only a matter of time before the rebels came their way.

Rhodesia's Prime Minister Ian Smith, issued a Unilateral Declaration of Independence of Southern Rhodesia on 11th November 1965, which didn't go down well with the United Nations who subsequently imposed sanctions on Rhodesia, while Communist backed terrorist insurgents infiltrated from three sides, leaving Rhodesia effectively isolated.

As hostilities increased the favoured method of terrorism against the security forces and innocent rural locals became the relatively cheap to produce but most effective land mine. The land mine is a perfect little soldier "Sentry", it never has to be fed, is always on duty day and night for years at a time without a complaint, making the anti-personnel and its bigger brother the anti-tank land mine, the weapon of choice during the Guerilla warfare that ensued.

### VEHICLE DESIGN

Great Britain had experience in contending with various insurgents using land mines. In Cyprus the intensification of land mines resulted in the deaths of many British soldiers leading to several attempts at building land mine protected vehicles. With no ongoing full-scale conventional war, the Land Rover was the main means of transport at the time and attempts to bring the causality rate down by



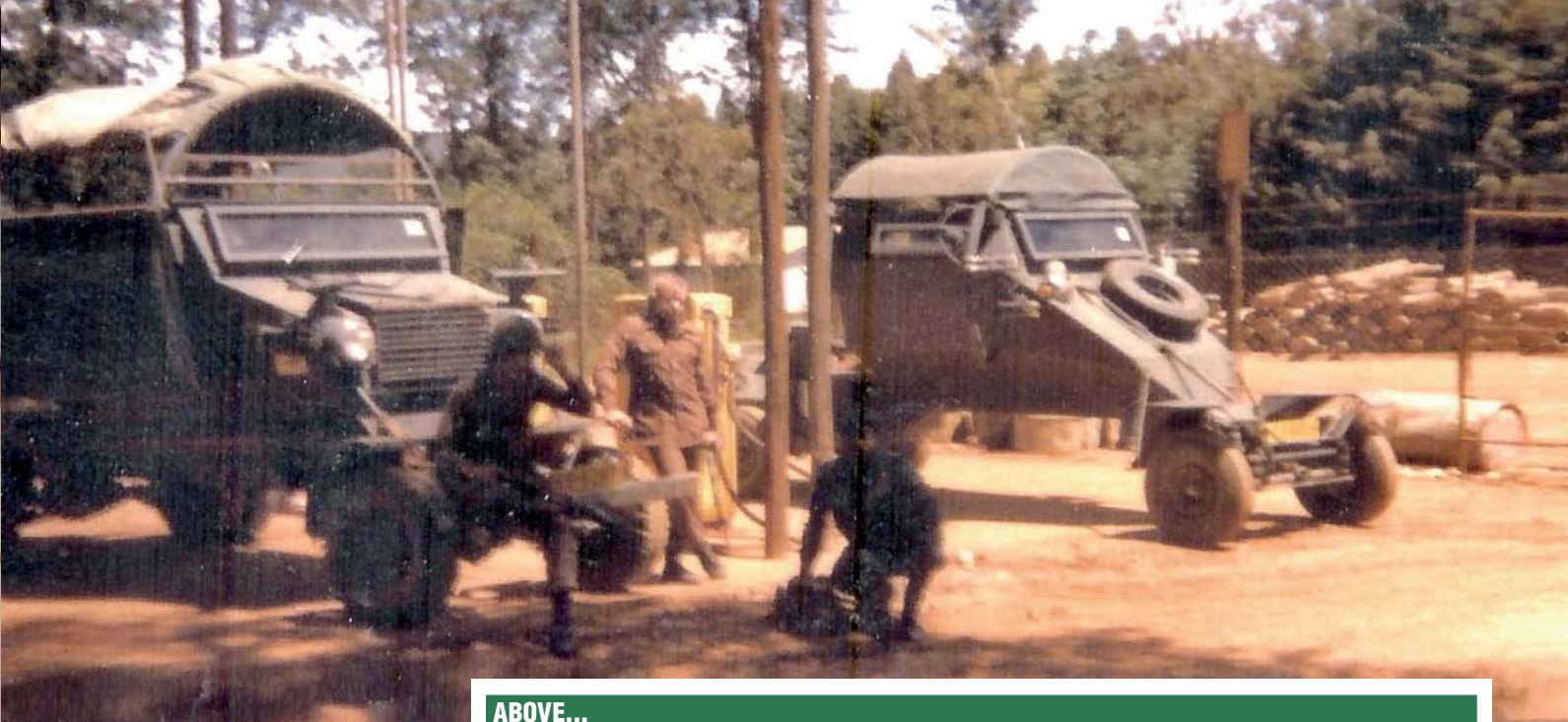
### BELOW...

The tough, reliable Cougar with pipe cannons took us in and brought us out of several ambushes while on convoy escort duty. The Cougar was initially built on a Land Rover chassis, then later a Nissan motor and chassis with a completely sealed body for added protection against centre road detonations.

World turned a blind eye to the developing situation and very soon Communist weapons and terrorist training were being made available to selected factions. Soviet Russia, Red China and other Marxist states readily provided terrorist training to these so-called Nationalist Freedom Movements.

During the middle sixties in the Congo the United Nations deployed





#### ABOVE...

A Cougar and Leopard refuel at Tilbury timber estate for convoy escort back to charter estate on a winding dirt road than on to the long haul to Umtali. Speed and versatility was essential to be combat effective in repelling ambushes. Direct hits from AK-47's left small dents and chipped paint, but once a rifle grenade detonated on the Cougars rear diff blew out the inside tandem tyres but it carried on the remaining 250 k's.

the use of sandbags and armour plating was ineffective.

Sandbags gave very little protection and in many cases caused more damage, especially blindness due to the bag's contents blasting into the vehicle occupants faces. Armoured plating gave some protection from anti-personnel mines, but created more shrapnel to the peril of occupants. In Aden by heavily sandbagging the driver's compartment and the rear there were some positive outcomes when used on the troop transport Bedford trucks, but eventually the Land Rover was regarded as impossible to protect from land mines.

The common cliché of Necessity is the mother of invention" could not be more apt during the subsequent development of ambush and mine protected vehicles during the Rhodesian war. As the war escalated, land mine protection became a key priority and ultimately saved many lives.



#### ABOVE...

This is what was left of the rear hull following a mine explosion. Had the six eager troops that initially jumped in had not been harshly ordered out there would have been six dead bodies. As the blast blew off the doors, Jansie the driver was flung out next to the crater as the vehicle went airborne. The vehicle was blown high enough to perform a 360-degree spin with a 180-degree flip catapulting me out to the right. The vehicle initially landed on rear end then bounced onto its front end causing considerable damage to body and frame. The 3-inch/75mm thick bulletproof front windshield broke loose punching through the seats into the rear cab wall.



#### ABOVE...

Many theoretical possibilities, some philosophical, but several intervening variables have to be acknowledged. By NOT being strapped in during a front wheel detonation the vehicle would have flipped up and backward sending us forward head first into the windscreen. Not much chance of survival by butting your head through a 3-inch/75mm thick bulletproof glass during a land mine explosion. Had we been strapped in during a rear wheel detonation and remained inside. The dislodged windscreen would have completely sliced through us as it did the bench seat back rest.



#### ABOVE...

A pair of Unimogs converted to 106 recoilless rifle carriers parked up while the teams take a break. Each vehicle is self-sustainable for long periods with camo net, extra water, fuel and ammo.

#### BELOW...

Left rear wheel detonation under a short wheelbase Land Rover. The devastation on this light vehicle is clear and it was a miracle that author and driver survived the blast. Why the rear wheel detonation and not the heavier front? Possibly a corroded detonator or old buried booby trap disturbed by the front wheel and activated by vibration of the rear wheel.





### ABOVE...

After crossing the Chimanimani Mountains that can be seen in the background, the convoy escort unit poses for a group shot at Charter Estate.

Over the years many experiments were conducted, some it has to be said were unsatisfactory. Initial concepts of overlaying vehicles with heavy rubber conveyor belts failed, as did cushioned steel seats, which could cause severe spinal shock in the event of a blast. Protecting passengers in the rear hull by utilising a capsule protected by roll over bars failed. Steel benches fitted to the rear edge of back hull also failed and many much-needed Land Rovers were destroyed in experiments while trying to formulate a solution that would protect rear passengers without any satisfactory solution being found.

Protecting the front cab driver and passengers was a different story. Using the front wheel arch framework, metal boxes were welded at an angle to absorb the blast. This protected the passengers,

but wiped out everything in between the two wheels. A metal plate didn't work as it blasted through the firewall into the cab. The innovation of blast deflectors and the adding of roll over bars to further protect the crew if the vehicle was overturned in the blast, all helped to save lives and provided greater protection from the threat of mines.

Later angled steel mesh screens were added and helped to deflect AK-47 Soviet/Chinese armour piercing rounds, and to detonate RPG-7 rockets, but not with total effectiveness and hollow shaped charges designed to knock out tanks would still penetrate through the armour, leaving a molten slug to ricochet around the inside of the vehicle.

The once unprotected Land Rover had now become a vehicle in which troops could not only be protected against land mines, but could be operated as an armoured attack vehicle. Over the years a variety of armoured capsule and body designs were created, all designed to meet operational needs with many mounted on a Land Rover

chassis, while some specialist models used only the engine and axles and resembled something out of a science fiction apocalyptic movie!

As the war progressed every imaginable means of defence was used, often reacting to changes in tactics by the guerillas. The South African Defence Research Unit scientific data and Rhodesian Mine Warfare Division proficiency developed the concept of a V shape hull, which proved to be effective in dissipating the blast by deflection. Passengers were relatively protected provided they were securely strapped in by harnessed type seat belts and this concept would go on to be incorporated into many future developed land mine protective vehicles.

What the UN did not achieve with the Land Rover, Rhodesian ingenuity and tenacity not only succeeded, but laid the foundation and expertise that is used on today's vehicles in the Middle East and the South African "Mighty Casspir", a classically designed mine protected vehicle, has become a world beater in terms of mine protected vehicles.



### ABOVE...

After a decade of faithful service the various Samils, Bosvark and Kwevoel models as well as the troop loving Buffel was finally replaced by the Casspir. This was the only name that differentiated from the traditional Afrikaans bush animal name. Today the Casspir is the most sought after value-for-money and combat proven wheeled armoured vehicle and what's more, it's fun to drive!

### RIGHT...

The South African version of the WW2 SAS desert patrols, the 44th Pathfinders "long range savannah patrol" in a modified long wheelbase Land Rover Sabres. Each unit would modify their own vehicles to suit their mission requirements, these guys are geared up to be away for a while.





#### ABOVE...

The convoy regrouping following an ambush. Not the safest place, with dense forest to the side, but it was still a casual affair for these seasoned convoy experts.

#### LEFT...

Not an ideal situation, being towed home, but somehow, some way we always made it back to base. In this case the vehicle was sidelined by shrapnel damage to a brake line.

#### BELOW LEFT...

Stinger - Obviously not considered a mine-protected vehicle, but a very popular and welcomed sight amongst police and privately escorted convoys. A 1400 Mazda with another uniquely designed effective means of defence against ambushes. This 360-degree revolving armoured turret with bullet screen was part of the timber convoy escort. Here Sgt. Maj. Edwards from the Rhodesian African rifles is well armed with a FN 7.62 MAG and helmet. Note the Cougar in background with an Eland antelope skin replacing the shot-up canvas roof and petrol tank in rear for obvious reason in the event of a land mine detonation.



#### ABOVE...

The Cuban surrogate troops abandoned one of their toys in a hurry, namely a Soviet PT-76 amphibious tank. Here a South African soldier inspects a captured, serviceable PT-76.

#### BELOW...

Out up front you can just make out a Pooky mine detection vehicle sniffing out land mines using sensors mounted inside winged scanners.



GIVE A...

# GIFT

THAT LASTS  
ALL YEAR ROUND



**MILITARY  
MACHINES**  
INTERNATIONAL

THE PAST, PRESENT AND  
FUTURE OF MILITARY VEHICLES

Military Machines International magazine caters for everyone, from those wanting to invest in this absorbing hobby seeking information on which vehicles are available, to those who already have their own 'Private Army'. Inside you will find everything from Jeeps and Land Rovers to Tanks, Armoured Cars and Artillery.

Now with bigger savings on 24 issue subscriptions

## OTHER TITLES AVAILABLE FROM KEY PUBLISHING

### THE WORLD'S BIGGEST SELLING BUS MAGAZINE



As the World's Biggest-Selling magazine covering the bus and coach industry, Buses is renowned for providing comprehensive news, hard-hitting opinions and accurate information alongside entertaining and thought-provoking features.

### BUYING, DRIVING AND RESTORING ORIGINALS VEHICLES



Classic Land Rover is an exciting new monthly magazine dedicated to Series and the classic Land Rovers. Written by enthusiasts, it is the complete guide to buying, owning, running, driving, repairing, modifying and restoring pre-nineties Land Rovers and Range Rovers.

### A HISTORY OF CONFLICT



As the UK's best selling military history title, Britain at War is dedicated in exploring every aspect of Britain's involvement in conflicts from the turn of the 20th century through to modern day.

### THE MONTHLY FOR ALL SCALE MODELLERS



Airfix Model World is your complete guide to the world of scale modelling, making it essential reading for modellers with all levels of experience. Focusing on model aircraft, it also features cars, ships, sci-fi, space, armour and figures.

### THE BEST COVERAGE OF TODAY'S RAILWAY SCENE



Each issue of Railways Illustrated offers a comprehensive round-up of the latest news and topical events from the UK across the present day railway, including heritage traction in operation on the main lines.

### STEAM NOSTALGIA AND RAILWAY HISTORY AT ITS BEST



Wherever you live in the British Isles, Steam Days offers nationwide coverage of 'The Days of Steam'. You can be assured of interesting and informative reading in each monthly issue.

## 3 EASY WAYS TO ORDER



ONLINE

[www.keypublishing.com/xmas13](http://www.keypublishing.com/xmas13)



PHONE

UK: 01780 480404  
Overseas: +44 1780 480404



POST

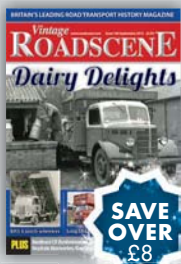
Christmas Subscriptions,  
Key Publishing Ltd, PO Box 300,  
Stamford, Lincs, PE9 1NA, UK

For our full range of titles visit: [www.keypublishing.com/xmas13](http://www.keypublishing.com/xmas13)

20

TITLES  
AVAILABLE!

## BRITAIN'S LEADING ROAD TRANSPORT HISTORY MAGAZINE



Vintage Roadscene, Britain's leading road transport history magazine, takes readers on a nostalgic trip back to the good old days of motoring as it used to be, when any road journey was a grand adventure.

SAVE  
OVER  
£8

## AT THE HEART OF AVIATION HERITAGE



Britain's biggest selling aviation magazine devoted to aviation history and heritage, FlyPast features global news, restoration projects, museum collections, the current airshow scene and superb photography.

SAVE  
OVER  
£8

## BRITAIN'S FASTEST GROWING MODEL RAILWAY MAGAZINE



Hornby Magazine takes a unique approach to model railways with both the relatively inexperienced and the seasoned modeller in mind. Unique step-by-step guides offer modellers hints and tips on how to get the most from the hobby.

SAVE  
OVER  
£7

## FREE GIFT CARD WITH EVERY SUBSCRIPTION

Your Gift  
SubscriptionREADERS IN THE USA  
MAY PLACE ORDERS BY:

TELEPHONE TOLL-FREE: 800-676-4049

OR FAX: 757-428-6253

## WRITE TO:

Christmas Subscriptions,  
3330 Pacific Ave, Ste 500,  
Virginia Beach, VA 23451-9828

ALTERNATIVELY, ORDER ONLINE:  
[www.imsnews.com/xmas13](http://www.imsnews.com/xmas13)

QUOTING/ENTERING CODE: **XMAS13**

## PAYERS DETAILS

Title ..... First name ..... Surname .....

Address .....

Postcode ..... Country .....

Email address .....

Please complete to receive news updates and offers from us by email.

## DELIVERY DETAILS (IF DIFFERENT)

Title ..... First name ..... Surname .....

Address .....

Postcode ..... Country .....

Email address .....

Please send Gift Card ☐

## SPECIAL OFFER (PLEASE TICK)

Title	<input type="checkbox"/>	Frequency	Number of Issues	SUBSCRIPTION PRICE			
				UK	Europe	USA	R.O.W
Military Machines Intl	<input type="checkbox"/>	Monthly	24	£75.75	€111.00	\$129.00	£91.75
Military Machines Intl	<input type="checkbox"/>	Monthly	12	£42.50	€63.00	\$70.50	£52.50
Buses	<input type="checkbox"/>	Monthly	12	£42.00	€62.00	\$90.00	£54.50
FlyPast	<input type="checkbox"/>	Monthly	12	£42.50	€63.00	\$70.50	£52.50
Hornby	<input type="checkbox"/>	Monthly	12	£37.50	€55.00	\$83.00	£50.00
Britain at War	<input type="checkbox"/>	Monthly	12	£43.00	€63.50	\$71.00	£53.00
Classic Land Rover	<input type="checkbox"/>	Monthly	12	£39.90	€59.99	\$64.99	£49.99
Modern Railways	<input type="checkbox"/>	Monthly	12	£42.00	€62.00	\$90.00	£54.50
Airfix Model World	<input type="checkbox"/>	Monthly	12	£41.00	€59.99	\$67.99	£49.99
Steam Days	<input type="checkbox"/>	Monthly	12	£41.00	€51.00	\$89.00	£53.50
Vintage Roadscene	<input type="checkbox"/>	Monthly	12	£39.50	€50.00	\$86.00	£52.25

Further discounts available on two year subscriptions  
visit [www.keypublishing.com/xmas13](http://www.keypublishing.com/xmas13) for details.



**Military Machines subscriptions**  
are also available by easy Direct Debit\*\*  
Just £9.50 quarterly + FREE Binder!

Visit [www.keypublishing.com/xmas13](http://www.keypublishing.com/xmas13) for details

## PAYMENT DETAILS

I enclose a cheque for £ / € / \$ ..... made payable to Key Publishing Ltd

Please debit my Mastercard ☐ Visa ☐ Maestro (UK Mainland only) ☐ for £ / € / \$ .....

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Issue number      Expiry date      Security Code (last 3 or 4 digits on reverse of card)

--	--

(Maestro only)

M	M	Y	Y
---	---	---	---

--	--	--	--

Signature ..... Today's date .....

774/13

**OFFER CLOSE DATE: 28 February 2014 PLEASE QUOTE: XMAS13**

\*\*Direct Debit UK only. Payments are accepted by Direct Debit, Cheque, Postal Order, Credit Card and US Dollar Check. Payments by credit or debit card will be shown on your statement as Key Publishing Ltd. Key Publishing will hold your details to process and fulfil your subscription order. Occasionally we may wish to contact you to notify you of special offers on products or events. If you do not wish to receive this information please tick here ☐ or mention when calling. \*Savings based on a 2-year subscription compared with our UK newsstand price. Please note: Free gift is only available on Direct Debit when taking out a minimum 2 year subscription. Should you cancel your subscription earlier than an invoice will be raised for the full price of the gift. See website for full terms & conditions.



# Armoured Command

We take a look at the 4x4 and 6x6 AEC Armoured Command Vehicles used during the Second World War

## ABOVE...

AEC Dorchester ACV of 24th Armoured Brigade HQ, 8th Armoured Div photographed on exercise in the UK and part of a larger signals column. Note the Morris-Commercial radio trucks behind, and the vehicle nickname 'Hermann' painted on the nose. (Photo – Tank Museum)

**T**he advent of tank warfare in the First World War created a need for tank commanders to be close to the action while remaining protected from enemy fire in order to effectively control this new weapon on the battlefield. The early tanks were slow and the terrain in which they were operating didn't lend itself to the use of separate armoured command vehicles, and as a consequence much of the commanding was done from the tanks involved in the battles on the frontline, with the obvious disadvantage of an increased chance of the commander

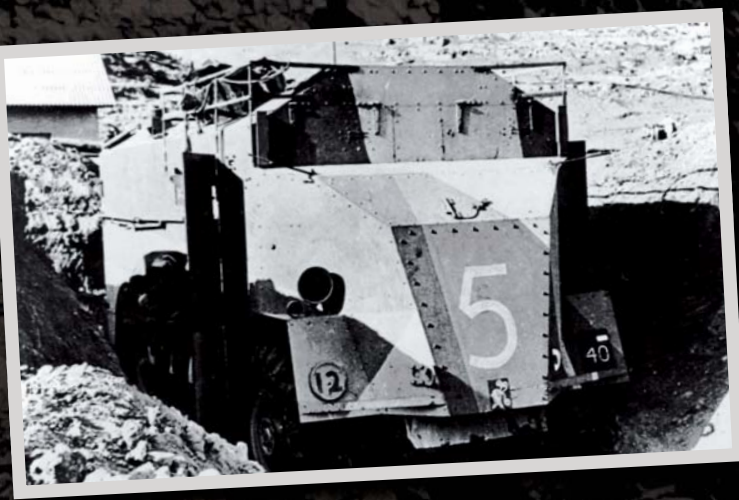
being incapacitated or killed on the battlefield.

At that time mobile radio communications were virtually none existent in terms of use with the tanks, and semaphore signals were used to guide tanks into battle following initial briefings prior to the engagement, however, as a battle evolved commanders needed to react to changes on the battlefield and communicating his instructions was hap hazard to say the least, and was often the cause of tank attacks faltering or failing.

Following the end of the First World War, new and more mobile

tanks were developed and the commanders in charge of these new tanks sought to embrace this new style of fast flowing mobile warfare. With effective tank-to-tank radio communication still in its infancy, it was often the case that commanders needed to view the battlefield and direct their forces from positions on the frontline and as a consequence some specialist command tanks were built in the inter-war period that would enable tank commanders to operate in close proximity to their tank force.

It wasn't long before these command tanks were deemed



#### ABOVE LEFT...

Rear three-quarter view of a mine-laying variant of the armoured AEC. The mines were dropped from the chute at the rear, but a change in policy that required mines to be buried rendered the vehicle redundant. (Photo – Tank Museum)

#### ABOVE RIGHT...

A 4x4 AEC Armoured Command Vehicle of HQ 2nd Armoured Division seen here dug in during operations in the Western desert campaign. Note the Caunter camouflage scheme and the stowage frame either side of the cab. (Photo – Tank Museum)

#### LEFT...

Attempts were made to disguise the angular design of the ACV so as not to attract too much attention from the enemy. Here we can see the curved cappings to the roof to make it look more like a conventional truck. (Photo – Tank Museum)



as being an expensive and unnecessarily complicated for the task in hand and with the threat of the Second World War looming on the horizon more cost-effective ways of creating an armoured command vehicle were looked into. Work began on a range of wheeled armoured command vehicles that, with their 4x4 layout based on existing truck chassis, could cope with the majority of the terrain likely to be encountered and yet were a lot cheaper and easier to produce.



#### ABOVE LEFT...

Interior shot of the radio communication equipment in the back of the AEC 4x4 Armoured Command Vehicle. Seating was provided for five crewmembers along with map boards and radios. (Photo – Tank Museum)

#### ABOVE RIGHT...

The general layout of the 4x4 ACV can be seen here with all five seats for the crew visible together with the map board and various stowage units. (Photo – Tank Museum)

#### LEFT...

Here we see an AEC 4x4 Armoured Command Vehicle on display with the side shelter deployed. The side door is visible behind the front wheel, as is the flap for the fuel filler cap. (Photo – Tank Museum)

#### RIGHT...

Described as a 'disguised ACV' this vehicle has been given a false nose and canvas cab to make it look more like a conventional truck.

Note also the false windows painted on the cab area.  
(Photo – Tank Museum)

#### BELOW...

Pictured in the Western desert during WW2, this 4x4 ACV is well laden with camouflage netting and equipment, it also wears an unusual camouflage scheme that is presumably trying to represent a false horizon to confuse enemy observers.  
(Photo – Tank Museum)



around the same body, including one for mobile mine laying and an Armoured Demolition Vehicle for use by the Royal Engineers. Outwardly they looked very similar, but inside the layout was quite different to the Command Vehicle. Very few of these variants were built, with the minelayer becoming redundant before it even got into service due to new instructions that dictated that all mines should be buried and not just dropped onto the battlefield.

There were two basic types of the production ACV, the Low Power (LP) version that had a pair of No.19 radios sets, and the High Power (HP) version that featured a high power RCA receiver and a single No.19 radio set. Externally the HP version was often seen with an extension to the nose, although the exact purpose of this extension is not fully understood, being subject

#### RIGHT...

Preserved in the Land Warfare Hall at IWM Duxford, this AEC 4x4 ACV is finished in European Theatre of Operations (ETO) camouflage and features the rounded cappings on the roof.

#### FAR RIGHT...

Another ACV is preserved at the Royal Signals Museum, Blandford. This example wears a disruptive desert camouflage scheme and features a number of additional stowage racks on the roof and on the front of the vehicle.



One of the best known armoured command vehicles to be used during WW2 was the AEC Matador-based 'Dorchester' Armoured Command Vehicle (ACV), which were used by armoured formation headquarters operating in the North African, Italian and North European theatres from 1941 onwards, and it is this, along with the larger 6x6 variant that I will be concentrating on for the purposes of this article.

#### DORCHESTER

Nicknamed after the well-known London hotel, renowned for its plush rooms, the AEC Dorchester ACV utilized the chassis of the 4x4 AEC Matador with a steel armoured hull built by either The Birtley Co. or Weymann Motor Bodies Ltd fitted to the chassis and powered by the AEC A187 diesel engine. A number of different designs were created based



to a variety of explanations ranging from an attempt to disguise the ACV as a truck, to a cover for additional charging equipment for the more powerful radios carried, however, the fact that these extensions were fabricated in both canvas over a metal frame and from more substantial sheet metal seems to confuse matters further. The stowage basket fixed to the front of the example preserved at the

Royal Signals Museum throws up yet another suggestion for this curious appendage; maybe someone out there has used these vehicles and can throw some light on this mystery?

Internally the layout of the early and late models of Dorchester ACV were similar, but differed in that an internal partition separated the wireless operators from the remaining staff compartment on the late models, whereas on the early version the rear compartment was arranged as a single open space with seating, map tables, radio equipment and storage cupboards.

The appearance of the Dorchester ACV on the battlefield came with an increased threat from the enemy seeking to disrupt communications and saw them being picked out as targets. In an attempt to divert



attention from the ACV various steps were taken to disguise the vehicles to look more like standard trucks. Major Jasper Maskeleyne of the Royal Engineers devised a number of methods of disguising the ACVs using disruptive paint schemes and canvas attachments for the nose and

sometimes on the cab, to give the appearance of a normal truck.

The Dorchester ACV proved to be a useful and well-liked vehicle and captured Dorchesters were pressed into service by the Germans during the African campaign. After the war the vehicles continued in

service until the advent of better radio communications equipment that rendered the need for a special armoured command vehicle redundant.

## HEAVY ACVS

Late in the war a larger, 6x6 Armoured Command Vehicle was developed to supplement the Dorchester ACV. In September 1942 an order was issued for the building of a prototype for a larger version of the Armoured Command Vehicle based around the AEC 0857 six-wheel drive chassis with a body built by The Birtley Company of County Durham. A production order for 150 vehicles followed soon after in 1943, resulting in the production of the 26-foot long, 17-ton Heavy Armoured Command Vehicle powered by an AEC 6-cylinder A198 diesel engine. The chassis used was a normal control variant of the type used on the 2,500-gallon refuellers by the RAF with the radiator positioned

### ABOVE...

A larger version of the Armoured Command Vehicle was created on the AEC 6x6 chassis, and featured an extended nose for the six-cylinder engine and larger rear compartment. (Photo – Tank Museum)

### LEFT...

Here we see the prototype for the 6x6 ACV. The design is virtually identical to the production variant, with the biggest differences being with the design of the cab area. (Photo – Tank Museum)

### BELOW...

Side view of a typical 6x6 AEC ACV showing the various poles stowed in racks on the side for the penthouse. (Photo – Tank Museum)



### RIGHT...

Rear three-quarter view of the 6x6 ACV. In the photo we can see the pioneer tools attached to the rear of the hull and the rear door. (Photo – Tank Museum)

### BELOW RIGHT...

The only known 6x6 ACV survivor, it languished in Pounds scrapyard in Portsmouth for many years before being rescued.

### BELOW...

The 6x6 Armoured Command Vehicle was considerably bigger than the 4x4 ACV and was based around the AEC Matador 0857 six-wheel drive chassis. (Photo – Tank Museum)



### BELOW...

Front three-quarter view of the 6x6 ACV showing the distinctive long nose housing the six-cylinder diesel engine. (Photo – Tank Museum)

lower than normal that resulted in the new vehicle having a long nose compared to the Dorchester ACV.

Like the later models of the 4x4 ACV, the 6x6 Heavy ACV was divided into two compartments, with the commanding staff in the forward portion and the wireless operators to the rear. Once again there was a

High Power (HP) and a Low Power (LP) version of the 6x6. The LP version contained two No.19 radio sets, while the HP version featured a No.19 set, a No.53 set, a R107 set and a cipher machine. Just 50 of the LP variants were built together with 100 HP variants. Both variants also included a cupboard at the rear of the compartment to house a

Coventry Climax 4KVA generating set, providing AC current for the various radios and the vehicle's ventilation system.

The 6x6 Heavy Armoured Command Vehicles didn't enter service until the final months of the war and it is unclear as to how much active service these vehicles saw as wartime images are few and far between. After the war the 6x6 ACV remained in service, or at least on strength even if they didn't see much use, with many being scrapped or sold off in the 50s and 60s and while some vehicles found new private owners following the sales, most were stripped of their bodies with only the chassis being kept, which was deemed as being of most use.

To the best of my knowledge there is only one known survivor, which was in pretty poor condition having spent many years languishing in the famous Pounds scrapyard in Portsmouth. Unfortunately it suffered for being so close to the sea air and while the armoured body was in reasonable condition, the lighter tinwork such as the front wings had largely rotted away.

There are a couple of examples of the 4x4 ACV in preservation, one being at IWM Duxford in the Land Warfare Hall, and another at the Royal Signals Museum, Blandford, but very few are known to be in private hands and of those none are fully restored as of yet.



## Make Sure You Have The Right Cover

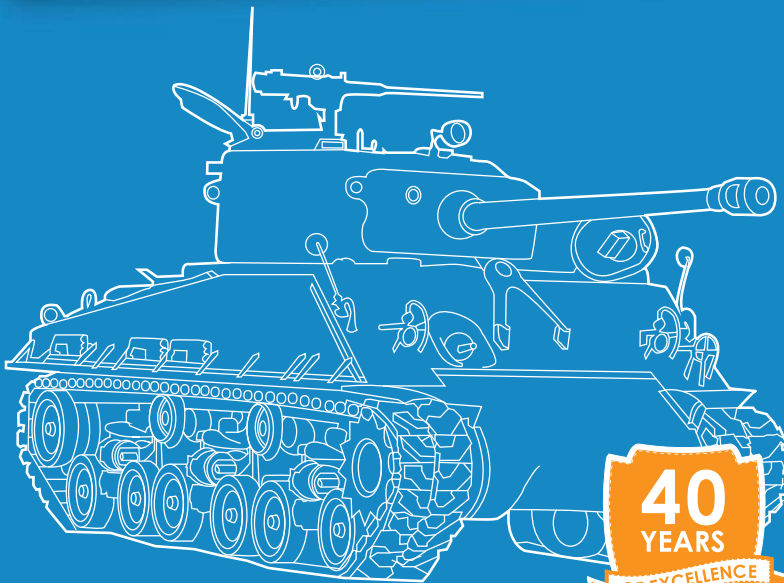
Adrian Flux Insurance Services know how much your classic military vehicle means to you. That's why we are dedicated to finding you a policy, tailor-made to your own personal requirements and driving history. Call us today for a free, no obligation quote.



**0800 081 8989**  
**adrianflux.co.uk**

Authorised and regulated by  
the Financial Conduct Authority

## Insurance for Military Vehicles



Policy benefits can include:

- Agreed Value
- Modified Cover
- Q-plates Cover
- FREE Legal Cover
- Limited Mileage
- 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)**.



**Alvis Stormer Tracked Armoured Recon Vehicle**, Fitted Perkins 6-litre, 6-cylinder, Crew: Driver, Commander plus 2 pax, year 1992, low mileage, Excellent condition, **Guide price from £12,500 (6 Available)**



**Land Rover Tithonus 110 Defender Hard Top**, Fitted 2.5ltr NAD engine, 5 speed gear forward and one reverse gear box, Hi/Low transfer box, Centre Diff lock, Front disc brakes, Rear drum brakes, etc, mileage from 22,000 kms, Excellent condition, **Guide Price for RHD £5,000 to £7500**  
**Guide Price for LHD £6,500 to £8,500 (20 Available)**



**LReynolds Boughton RB 44 Truck Cab Pickup R.H.D**, Permanent 4x4, 5 speed g/box, hi/lo box differential Lock, 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](mailto:sales@mod-sales.com)



# Exercise Anakonda

## DANIEL NOWAK

JOINED TROOPS  
DURING EXERCISE  
ANAKONDA-12 THE  
LARGEST MILITARY  
FTX HELD IN POLAND.



### ABOVE...

A T-72M1 tank seen here during live firing at the Ustka range. The firing simulated an attack against ships landing troops and equipment during an amphibious assault.

**A**s in previous years, Exercise Anakonda concentrated on joint operations with participating soldiers coming from all military branches of the Polish Armed Forces, including Military Police and the Inspectorate of Armed Forces Support, which provided added value for an exercise of this type, demonstrating cooperation between military and governmental departments.

For the first time in its history the exercise had been included

into the NATO training program, becoming a multinational exercise. In the past the role of foreign forces was limited to the role of observers, but during Anakonda-12 soldiers of the Multinational Corps North-East, USA (Operational Group from 18th Military Police Brigade, 630th Military Police Company) and Canada (Operational Group from 2nd Canadian Mechanized Brigade) played an active role in the exercise, with other foreign military delegations observing the exercise.

Around 11,000 soldiers and around 2,300 vehicles and equipment took part in the exercise, with operations taking place in eight provinces of the country.

The goal of Anakonda-12 was to improve the ability of the forces involved and provide instruction for the military command in planning, organizing and conducting joint operations with participation of non-military elements from the state and cooperation with Allied reinforcement elements.



#### ABOVE...

This T-72M1 Main battle Tank awaits the enemy in a hull down defensive position. The vehicle belongs to the 1st Battalion of the 21st Mountain Infantry Brigade.

#### RIGHT...

Advance to contact! This T-72M1 moves forward to defend the beach line during an amphibious operation.



#### ABOVE...

The T-72M1 is due to be withdrawn from active service, leaving only the Polish upgrade variant known as the PT-91A Twardy and some Leopard 2A4 to form the backbone of the armoured units in the future.



#### BELOW...

Leopard 2A4 during an attack. The 10 Brygada Kawalerii Panczernej have 116 Leopard 2A4 in service, split into two Battalions, each with 58 tanks.



## SETTING THE SCENE

In setting the political-military background, the exercise assumed the existence of two opposing political-military-economical blocks, namely Eastern Euroland Group of States (Funland, Baria, Canton and Monda), which would be known as the RED Force for the duration of the exercise, and the Alliance of the Blue Sea (BlueSallio), the BLUE Force.

The exercise was based on an

imaginary crisis between Wislandia, Funland and Monda that began to evolve at the beginning of the 21st century as the result of the diversification of energy supplies that made Wislandia energetically independent from those countries. It also resulted in a decrease in economic growth in the Eastern Euroland Group of States, especially in Monda.

To divert attention from their internal problems, the government

of Monda blamed their neighbours, Wislandia, for its poor economic situation and consequently renewed territorial disputes, using national minorities living in Wislandia to fuel the crisis between the two countries. Reacting to threats, Wislandia increases its activity in international structures, maintaining the combat readiness of its armed forces and updating defence plans.

The build-up of the conflict as



#### ABOVE...

The Polish version of the BMP-1 called BWP-1 (Bojowy Woz Piechoty) is the armoured infantry fighting vehicle of the mechanized infantry. This vehicle has all hatches waterproofed with grease for the amphibious landing operation.

### RIGHT...

The KTO Rosomak based on a Patria AMV with an Oto Melara 30P turret was the newest Combat vehicle in the field. It entered service in 2005, the last vehicles should be delivered in 2015.

### BELOW...

The ZSU-23-4 MP Biala is the modernized version of the ZSU-23-4 Shilka. Two batteries of the Air Defense Battalion of the 10 Brygada Kawalerii Pancernej are equipped with the system.



for the first day of Anakonda-12 and a starting point for further military operations in the following days of the exercise.

Names of parties involved in the imaginary conflict, military blocks and alliances did not relate to any real geo-political, economic or business environment and was not identified with any state or union.

### TACTICAL EPISODES

The Land Forces involved conducted an assortment of reconnaissance and delaying action exercises as well as defensive tactics, launching counter-attacks with armoured cavalry and mechanized infantry units, amphibious landings, airborne operations behind the lines among the enemy force, fire support in both the defensive and attack roles, anti-aircraft protection and the logistic support of operations, which included the supply of materials and equipment, evacuation of men and equipment, field repair scenarios, and medical evacuation.

The Air Force was tasked with gaining air supremacy in the area, engaging and suppressing

a result of the actions of Monda and Funland forced Wislandia and Blue Alliance structures to conduct a number of emergency response operations. As a consequence the state of the crisis, defence readiness was declared in Wislandia.

Wislandia had been carrying out a defensive joint operation with the participation of non-military national defense elements, setting the scene



### ABOVE...

BWP-1 of the 7th Coastal Defense Brigade. Budget cutbacks caused a modernization program called 'Puma' to be abandoned. So the BWP-1 will be still remain in service.



### ABOVE...

Land Rover 110 hard top of the Zandarmeria Wojskowa (ZW - Military Police). About 138 vehicles were delivered for the ZW between 2005 and 2010.

### LEFT...

This version of the Tarpan Honker is used by the Central Psychological Operations Group. Note the loudspeakers on the roof and the protection for the cab screen and side windows.





the enemy, counter amphibious warfare and supporting both land and naval operations, while the Navy was tasked with the destruction of enemy warships and anti-submarine warfare, mine reconnaissance and destruction and combat support.

A number of Special Forces units were also involved, participating in various special operations involving

reconnaissance, the destruction of targets, counter-diversion actions and special protection roles.

Most activities took place at the Land Forces Training Centre in Drawsko-Pomorkie, next to the Air Forces Central Range at Ustka, where some amphibious landing operations were held during the exercise.

The command and administration of Exercise

Ankakonda-12 was in the hands of the Operational Command of the Polish Armed Forces, which was formed as a result of transformation of the command system of Polish Armed Forces tasked with the command of missions and joint operations in Poland and abroad. Since it was established the Operational Command has commanded contingents of all

#### TOP LEFT...

The Tarpan Honker is the most common multi-role light vehicle in the Polish Army. This one is in service with the 8th Battalion Electronic warfare.

#### LEFT...

Based on a Jelcz P622D.35 G-27 6x6 chassis, this Multiple Rocket Launcher called WR-40 Langusta is an upgrade of the BM-21 System. Here we see the system moving to a new fire position.

#### FAR LEFT...

Self-Propelled Surface-to-Air Missile System Osa-AKM-P1 'Zadło' (Also known as SA-8P Sting) during an live firing mission coast during the first phase of Exercise Anakonda.

#### ABOVE LEFT...

The S-125 SC Newa is an Self-Propelled Surface-to-Air Missile System based on a T-55 chassis.

#### BELOW...

Shortly after the landing on the beach the infantry dismount for the attack and the BWP-1 moves forward providing support for the attack.





#### ABOVE...

This Ural-4320 6x6 box body is part of the radar group SPN 40. Note the unusual camouflage painting of the truck.

#### ABOVE RIGHT...

A convoy of Star 266W trucks of an artillery unit supply troop moves to a new location. The polish-manufactured trucks are the backbone of the transport units in the Polish Army.



services in NATO, UN, EU missions and operations in three continents. Additionally, Operational Command is responsible for planning and the use of force in military and non-military operations, and in times of crisis or war, Operational Command can play a role or be part of the command authority.

*The Author would like to thank Lieutenant Colonel Dyzla and Lieutenant Colonel Ochyra for their invitation to visit Anakonda-12. A special thanks goes to Clemens Niesner for his support with some of the photographs. A Video DVD of Anakonda-12 (order-number 151) is available at: [www.mn-pictures.de](http://www.mn-pictures.de)*



#### LEFT...

Special Forces were also involved during the whole exercise. This troop is part of the Task force from the FORMOZA unit and are very seldom seen!

#### FAR BELOW LEFT...

The Toyota Hilux 4x4 is the 'Battle Taxi' for the Special Forces from the FORMOZA Unit. Here we see them moving to an objective shortly before the attack is starting.



#### BELOW LEFT...

Fast roping during a mission of the Special Forces. The Mi-17 Helicopter is the standard helicopter for such operations.

#### BELOW...

A Tracked Amphibious Medium Transporter called PTS-M arrives the beach of Ustka shortly after leaving the dock landing ship. This non-armoured vehicle can carry up to 30 soldiers.





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.

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

Visit us at Military Events though out the year, or at  
or online at [www.mvt.org.uk](http://www.mvt.org.uk)

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](http://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!**



# VISIONS OF WAR™

## A MILITARY HISTORY CHANNEL




**WEDNESDAY IS THE DAY OF WAR!**  
**PREVIEWING EVERY WEDNESDAY AT 4 PM**  
**ON SKY CHANNEL 192 & FREESAT 402**

If it's military, and it's history - you'll find it on Visions of War, the brand new military history channel broadcasting the very best in documentaries, feature films, reviews, and battlefield archaeology.

The full channel goes live in March 2014 but in the meantime we are broadcasting our pre-launch showcase every Wednesday at 4pm on Showcase Sky Channel 192 or Freesat 402.

Please make a date to join us but if you can't catch us live you can set your Sky planner to record the show every Wednesday using Showcase Sky Channel 192.



# Op Herrick 19

**Shaun Connors** joins 7 Armoured Brigade (and others...) on Salisbury Plain as they prepare to deploy to Afghanistan for Herrick 19.



## ABOVE...

**MAN HX77:** To meet the evolving threat on deployed operations, Project Fortress saw the upgrade of 280 vehicles, the main emphasis of which was enhanced crew survivability. The EPLS (Enhanced Palletised Load System) is another UOR under Project Barricade.

Operation Herrick is the codename under which all British military operations in Afghanistan have been conducted since 2002, preceding operations known as Operation Veritas and Operation Fingal. The drawdown of British troops in Afghanistan has begun, and combat operations are currently projected to end in December 2014.

It did not come a moment too soon for many, when in December 2012 David Cameron announced that 3,800 British troops (almost half of the force serving in Helmand Province) would be withdrawn during 2013. Between 2009 and 2012

there were about 9,500 British troops in Afghanistan, this number having dropped to 7,900 by May 2013. By December 2013 there are expected to be 5,200 troops remaining.

Since 2001 a total of 444 British military personnel have died on operations in Afghanistan, with 106 recorded fatalities making 2009 the worst year. Alarming, according to The Guardian, research has found that the rate at which British soldiers have been killed in Afghanistan is almost four times that of their US counterparts, and double the rate which is officially classified as major

combat. The official classification of 'major combat' is a killing rate of six per 1,000 personnel years. For the 12 months up to May 2013, the rate for British troops in Afghanistan stood at 13.

Brigades deploying on Operation Herrick regularly serve six month tours and rotate in the spring and summer of each year. At the time of writing (early September 2013) Herrick 18 which deployed in April 2013 and is led by 1 Mechanised Brigade was preparing to be replaced by 7 Armoured Brigade which will lead Herrick 19.

MMI was invited to join 7 Armoured Brigade (the Desert Rats) on



#### ABOVE...

Chinook: Not a vehicle, but one hell of a machine... A key part of the Herrick 19 media day was the introduction of the RAF's latest Chinook Mk4 variant, the flight in which was a level above any adventure/theme park ride I've ever been on...



#### ABOVE...

HX60: A brace of near-new Support Vehicle HX60 6-tonners. The last of the Bedford MK/MJ 4-tonners in service will be withdrawn by year-end, and all but a couple of hundred DAF 4-tonners (that may be retained in mortar and gun tractor roles) will have followed by late-2014.

#### RIGHT...

Amy: Seen here with handler of 3 weeks, Private Danny Greenhalgh from the Royal Army Veterinary Corps, Amy the 4-year-old Belgian Shepherd doesn't technically qualify for inclusion in MMI, but as a military working dog with previous tours under her belt, and whose job includes sniffing out IEDs, maybe she should...



#### BELOW RIGHT...

JCB 4CX: As part of the ALC C-vehicle PFI arrangement the UK MoD received 138 JCB 4CX backhoe loaders between September 2009 and early-2010; five of these were waterproofed and winterised.

#### LEFT...

Trakker: IVECO delivered 182 AD380T45W Trakker (6x6) trucks to ALC as part of ALC's 2005-awarded £600 million 16-year PFI undertaking for the MoD's C-vehicle (engineer) fleet. The bulk of the vehicles are tippers, these including 71 Self-Loading Dump Truck (SLDT), which replaced Foden Alpha (55 delivered 2001-2003) and Volvo FL12 (144 delivered from 1998) fleets respectively.





#### ABOVE...

**JCB 436:** As part of the ALC C-vehicle PFI arrangement the UK MoD received 98 JCB 436 wheeled loaders from 2010, these replacing a fleet of Case 721 machines.

#### ABOVE RIGHT...

**Pinzgauer:** The decision was recently taken to bring forward the out-of-service date (OSD) for the Pinzgauer fleet from around 2030 to closer to 2020, this well-liked but difficult-to-support fleet now suffering increased supportability and obsolescence issues. This example would have been one of the first batch of 394 Truck Utility Medium (Heavy Duty) (TUM (HD)) delivered from 1995.

#### RIGHT...

**Mastiff:** According to MoD data presented to parliament the UK has purchased 299 Mastiffs, 101 Wolfhound, 177 Ridgebacks, 455 Jackals, 76 Coyote, 333 Husky, 132 Snatch Vixen, 198 Vector, 30 Cougar, and 115 Warthog vehicles since 2006, with the majority being deployed to Afghanistan. A further 376 Foxhounds have been ordered since 2010.

#### BELOW...

**Apache:** While not technically required on Salisbury Plain..., an Apache attack helicopter was on hand to provide air cover!

Salisbury Plain as its pre-deployment training reached a conclusion. Unusually, Herrick 19 will be an eight-month tour and conclude in June 2014, the subsequent Herrick 20 being a six-month tour from June until December 2014. Official reasons for this are that the final tours will be better aligned with key milestones in the transition process, and remove the need to train and deploy another Brigade in October 2014 for the final few months of operations. Following withdrawal in December 2014 it is estimated that around 200 British troops will remain in assorted non-combat support and training roles.

## URGENT REQUIREMENTS

Most of the vehicles procured under Urgent Operational Requirements (UORs) for use in Afghanistan will be returned to the UK, and following refurbishment and other associated work, will be integrated into core. For those not required, there is a NATO-wide policy in place for 'gifting' equipment that ISAF nations will not take home, this either to the Afghan National security forces, or militaries of neighbouring friendly countries. Certain items, such as those damaged beyond economical repair, may be destroyed in country.

Most recent reports in MMI that

have looked at British Army vehicles and equipment have, perhaps logically, been Afghan-focused, and while technically this report comes from an Afghan-focused event, for a change I'm taking a different approach. This time around I intend to look at vehicles that may have been neglected in recent years, or may have never even been covered because they're green and unprotected. I've even included a couple of only just vehicles..., plus a couple of non-vehicles, but then the mag is called Military Machines, not Military Vehicles! So..., sit back and enjoy a selection of images from a 'different angle'...





### ABOVE...

**Quad Bikes:** By early 2003 British troops in Afghanistan had received a small quantity of ATVs under a UOR (Urgent Operational Requirement) for use as 'mules', to alleviate the difficulties of carrying in the rarefied air of higher altitudes. An immediate success, a further UOR for >100 additional machines soon followed. A further UOR for 250 Yamaha Grizzly 450 ATVs complete with purpose designed logistic trailers then followed.

### BELOW...

**D-30:** The D-30 122 mm gun is a Russian design that dates back to the 1960s, this Afghan Army example about to be towed by a Pinzgauer TUM (HD).



### ABOVE...

**Ambulance:** From a current fleet of 776 Defender XD Pulse battlefield ambulances, around 420 examples are expected to be retained following ongoing restructuring of the Army. This allows for surplus examples to be converted under Project Hebe, into double cab pick-up configuration for a mortar role.

### LEFT...

**EPLS:** Support Vehicle EPLS trucks are fitted with a Multilift MSH165SC load-handling system (LHS), which is rated at 16,500 kg and features an integral Container Handling Unit (CHU). Based on Multilift's commercial product range, compared to the military-specific pivot-type hooklift (MPH) system fitted to the UK's DROPS fleet, the sliding-type hooklift system gives the lowest possible installation height while meeting most of the key military operating requirements, giving the best possible chance to carry ISO containers on a military chassis within the 4m European road regulations height limit.



### LEFT...

**105 Gun:** Prepared for towing, a 105 mm Light Gun. The first production Light Gun was handed over to the British Army at the now closed Royal Ordnance Factory Nottingham in 1974. Including training and reserve, 166 Light Guns are currently in service.

### RIGHT...

**Dragon Runner:** Dragon Runner is a backpack-able multi-terrain robot capable of detecting a variety of devices without putting the operator in harm's way, which helps bomb disposal experts find and deactivate improvised explosive devices (IEDs). It has been acquired as a UOR and deployed to Afghanistan in support of Explosive Ordnance Disposal (EOD) activity.



# *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](http://www.graham-sykes.co.uk)**



# TANK TIMES

Published by THE TANK MUSEUM, Bovington, Dorset, UK, BH20 6JG

Tel: +44 (0) 1929 405 096

www.tankmuseum.org



## THE WARTIME CHRISTMAS FESTIVAL AND CRAFT FAYRE

Saturday 7<sup>th</sup> & Sunday 8<sup>th</sup> December 2013



### RARE VEHICLES ON DISPLAY IN NEW VEHICLE CONSERVATION CENTRE

Years of planning and hard work were celebrated as The Tank Museum's new, Heritage Lottery funded, Vehicle Conservation Centre (VCC) was officially opened.

The 40,000 sq. ft. Vehicle Conservation Centre, which will house over 100 armoured fighting vehicles, was built with the assistance of a £2.5m Heritage Lottery Fund (HLF) grant. The new hall includes a public observation gallery and 'Conservation in Action' exhibition, and will contain vehicles which have never been on public display before.

Museum Director, Richard Smith said, "The Vehicle Conservation Centre will provide us with much needed space; enabling us to add new exhibitions and ensuring that our collection is stored in a dry and properly heated environment. This new centre also gives us the facilities for an on-going volunteer led conservation and preservation programme, further guaranteeing the long term future of our collection."

Historian and Museum Trustee Dan Snow, actor Chris Barrie and Dorset's Lord Lieutenant Mrs. Anthony Pitt-Rivers were all present as the new hall was opened.

Dan Snow said, "Yet again The Tank Museum has produced an absolutely world class facility. The new vehicle space gives them a chance to display even more of the collection. Being able to stand on that mezzanine level and look down on the packed ranks of tanks is a thrill. The Tank Museum is fantastic, and the best thing is that it's still growing."



From left: Richard Smith, Dan Snow, Peter Gilchrist, Doug Hulyer, Mike Hayton, Darren Parsons and Chris Barrie.

The contribution of the workshop volunteers is the real focus of the VCC, with examples of their conservation work on display. One of the Museum's most dedicated volunteers, Darren Parsons from Southampton, co-opened the Vehicle Conservation Centre with HLF representative Doug Hulyer.

Mr Parsons, an engineer for Exxon Mobile said; "Volunteering has allowed me to both learn and share my knowledge with other volunteers. We all have a different range of skills and abilities but we all find it rewarding to make an important contribution to keeping this heritage alive for visitors to enjoy."

Visitors will have the opportunity to explore the floor of the VCC during special events and experience days. Otherwise tours are conducted daily, where visitors will be able to view the centre and Conservation in Action exhibition on the mezzanine floor.

The VCC will also give us the chance to start collecting again, so watch this space! **II**

### INSIDE...

- PRIVATE FORWARD
- WHAT'S ON
- BRITAIN AT WAR DAY
- SPOILS OF WAR?
- DISABLED TIGER



### FROM THE EXHIBITIONS TEAM



Over the past year, as part of the Heritage Lottery Fund project, the Exhibitions team have been busy working on three new displays.

The first - 'Conservation in Action' - is situated in the new Vehicle Conservation Centre and opened to visitors in September. The exhibition features a mixture of film, graphics, photographs and large objects to tell the story of the care and maintenance of the Museum's collection of vehicles. The work, with the exception of the design of graphic panels, was completed in-house by a team of six staff and a number of volunteers.

Attention is now being turned to the Museum's major exhibition to mark the 100 years anniversary of the start of First World War. 'Warhorse to Horsepower' will examine how the British Army became increasingly mechanised during 1914-1918 and how Cavalry units eventually gave up their horses for tanks during the 1920s and 30s. The role of the horse generally will also feature, including a focus on feeding, medical care and the close relationships that often developed between soldiers and their horses.

Although a complex topic and one that is inevitably distressing due to the awful suffering of horses and men on the Western Front, the exhibition aims to get information across in a sensitive but also engaging way.

Continued on page 2...

## FROM THE EXHIBITIONS TEAM CONTINUED...

Ever conscious of our family audience, any new exhibition at The Tank Museum must appeal to a range of ages and this requirement has been at the centre of our planning over the last year. To that end, Warhorse to Horsepower is an interactive exhibition, with a cut away Mark IV tank that gives visitors the chance to act as a crew and perform actions; there will also be opportunities for people to try on uniform and handle artefacts.



Model visual

One of the more unusual features will be the chance to listen to nine reproduction horses who, placed at various points in the display, will talk of experiences ranging from work as a pre-war farm horse, to hauling artillery on the Somme, through to military exercises on Salisbury Plain in the 1920s. As with most exhibitions now, it is usual practice to test ideas with a range of groups and we have received differing views to this idea. However, we believe with the correct script, talking horses will be a powerful tool to educate people about the lot of horses during the First World War. For those of you who know the Museum well, Warhorse to Horsepower will be placed in the Interwar Hall of the Discovery Centre. A number of vehicles currently in the hall will be kept in place but others will be moved out into the new Vehicle Conservation Centre. By January 2014, installation of the exhibition will begin with a completion date of the end of March. The third exhibition 'Making Tanks' will open in spring 2015 with the design and manufacture of armoured vehicles over the last 100 years as its central theme. I will save the details for that, however, until next time. T

*S L Lambert*

Sarah Lambert  
Exhibitions Officer



Centurion rolls into the arena in front of the newly opened VCC

## BRITAIN AT WAR DAY

The new Britain at War show launched in September, focusing on the Korean War and the National Service years.

There were a number of vehicles from our collection in the arena display, as well as a contingent from the Military Vehicles Trust.

Our talks and tours, including ones on the Korean War and the daily life of a National Service soldier, proved particularly popular.

Below: The Museum's Centurion Armoured Recovery Vehicle and Cold War T-34 roar into action for the Arena Display.



Below: Visitors found out first-hand what life was like for a National Service soldier.

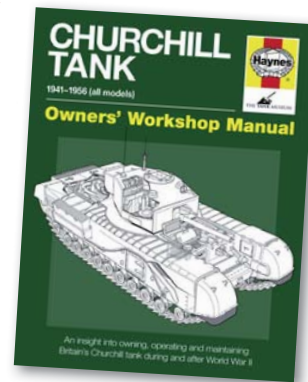


We were also able to collect some illuminating memories from Royal Armoured Corp National Service Veterans; tales of freezing in Korea and polishing boots gave us a taste of what it was really like.

Keith Flowers, who served in Germany as a mechanic, told stories of fixing tanks during a blizzard, but still said "he enjoyed every minute of National Service". T



Above: 'From the other side of the Iron Curtain' - Former Eastern Bloc Tank Commander, Dag Patchet kept the audience enthralled with his talk on the Cold War from the other side.



Tank Museum Appeal Board member Nigel Montgomery has written a detailed account of the Churchill tank in the successful Haynes Manual format.

This popular series was pioneered by The Tank Museum's book on the Tiger, and more recently the Mark IV WW1 tank.

Nigel has been working with a team to restore three Second World War era Churchill tanks to working order, ahead of next year's 70th anniversary of D Day.

Alongside this work, he has recorded the restoration process and the fighting history of the Churchill tank with many images from the Museum's Archive. The manual provides a detailed account of the Churchills' history and drills down into the nuts and bolts of the tank's anatomy. T



We are pleased to announce the winner of our Armortek Raffle.

At the Armortek Show on Saturday 28th September Mr. Newton-Pike became the proud owner of the 1/6th Centurion tank built by Armortek.

The Armortek Show was a great success, with modellers travelling from all around to meet and display their extraordinary vehicles.

When told of the news Mr. Newton-Pike said, "I'm overwhelmed. I've never won anything in my life, and I'm extremely pleased to have won this fantastic model".

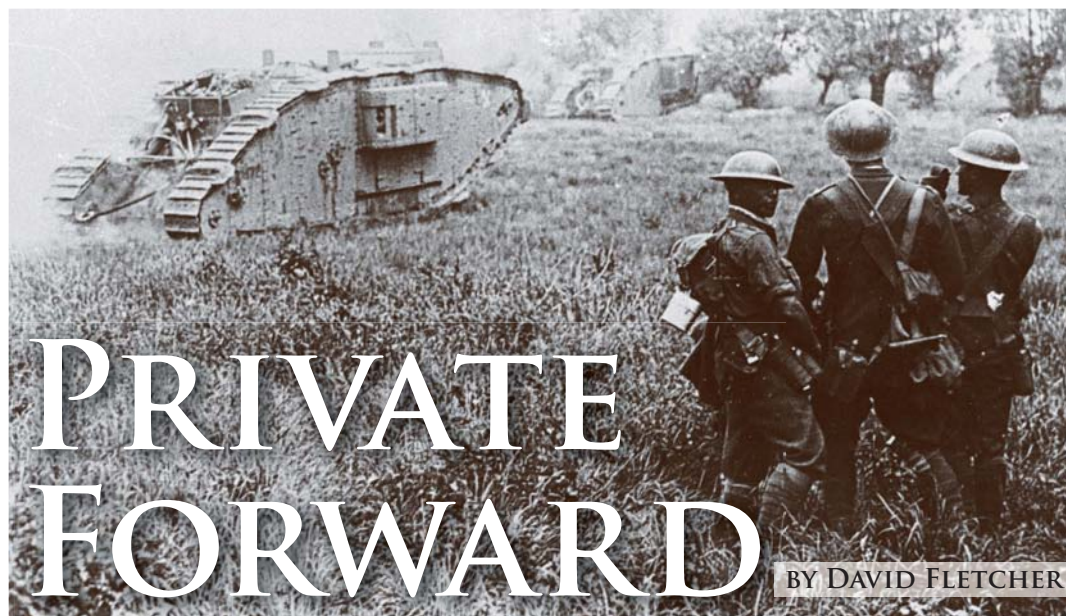
The Centurion model is ready to run, finished in bronze green and fitted with High Efficiency Motion Pack and Sound System - complete with Futaba 2.4 GHz 6 Channel Radio Control Unit. T



Follow us



Rate us



# PRIVATE FORWARD

BY DAVID FLETCHER

The donation, by his family, of a marvellous collection of letters that passed between Gunner Robert Forward and his friends and family, has been a major contribution to The Tank Museum's Archive and Library. It contains the thoughts and views of an individual caught up in the ghastly process of war. It enables us to hear, loud and clear, the all-important voice from the ranks that is rarely heard.

Conscripted in 1914, he served in tanks from the earliest days in 1916 when it was known as the Heavy Branch, Machine Gun Corps, right through to the end of the war; four long and harrowing years. It was men such as Bob Forward who kept the wheels of the Tank Corps turning, so to speak, through thick and thin. Without men like that, the Tank Corps couldn't have become the highly efficient and powerful force it was by 1918.

The attitude of these early conscripts is summed up in an article by Sergeant Littledale "The spirit of adventure called us to the tanks... and so the call for volunteers found us ready..." and though it is difficult to judge attitudes at the time, these words most likely sum up some of the feelings of those who volunteered.

When Forward, who came to the tanks from the 20th Battalion, The London Regiment, was struck by this spirit of adventure, he was initially posted to B Company. B Company had a most inauspicious start to its military life. It was shipped across to France in October 1916 without any tanks, and only a handful were available after it arrived. A month after that it was reconstituted as B Battalion; it was June 1917 before it was called into action at the Battle of Messines in the Ypres Salient, where it was equipped with the new Mark IV tank.

Private Forward had badly injured his hand in May of that year, after trapping it in a tank door and so missed the battle, returning to England to have a finger removed. From then until early 1918 he remained in Britain, first at the Command Depot at Alnwick in Northumberland, then at the new Tank Corps headquarters at Bovington Camp in Dorset and ultimately at Lulworth Camp on the Dorset coast which he spent in training, preparing to go back to France. Meanwhile his Battalion had been in the thick of the action at the Battle of Third Ypres in

July and August 1917. It was a battle as much against glutinous mud as the enemy, in which tanks almost sank out of sight in the dreadful conditions and it was described by Colonel Fuller as 'a complete study of how to move thirty tons of metal through a morass of mud and water'.

As his Battalion went into the famous battle at Cambrai on 20 November 1917, Forward remained in Dorset. Although clearly the thought of battle played heavily on the mind of him and his family; he wrote to his wife, "I must warn you to be prepared for the unexpected happening if I get called". Forward went on to join 12th Battalion, formed at Bovington in July 1917, going over to France in January 1918. The Battalion then became involved in the massive German offensive of March and April 1918, when Forward and his friends were organised into Lewis gun machine-gun teams without their tanks.



Private Robert Forward, with his young son Robert Stanley.

After being moved up the line, in late August, Forward writes "I can hardly realise that what we have just been through is true". Having made it to their objective "under very hot machine gun fire", the crews' tank pitched into a wide trench. Despite a four hour effort to move the tank, still under heavy gun fire and shelling, the crew were forced to abandon their tank.

From the middle of August 1918 until virtually the end of October, less than two weeks before the Armistice, 12th Battalion was in action almost on a daily basis. In that time the tanks themselves covered prodigious distances, far greater than they had ever been designed for which must stand as a tribute to these tough old tanks and to the men who maintained them and kept them running at a crucial time, including of course

Gunner Robert Forward.

Almost exactly one month before the 11th November Armistice, Forward was wounded by a direct hit to his face by a machine gun bullet, which went straight through his jaw, tongue and teeth, whilst helping one of his wounded comrades back to Allied lines. Robert's superior, 2nd Lieutenant De La Mere, writes to his wife that he "can't speak too highly of [Robert]".

Private Forward recovered, and returned to his wife and son before the end of the war. **T**



In addition to the valuable collection of letters and photographs, the family has also presented us with a classic example of Tank Corps uniform that Gunner Forward had kept as a souvenir of his time as a tank man.

It is a tank crew face mask, issued to every member of a tank's crew to protect his face and particularly his eyes from the effects of 'splash'.

'Splash' was a most unpleasant and unavoidable aspect of tank warfare, bought about when bullets from enemy machine-guns struck the armour plate of the tank. Some of the lead from the bullet, splattered on the outside of the armour, squeezed in through the slightest gaps as microscopic droplets of molten metal, tiny slivers of metal would also come off of the inside of the armour from the impact of bullets on the outside.

On exposed flesh it was bad enough, it worked its way under the skin and emerged as tiny black spots, but if any of it got into your eyes it could do untold damage, even to the extent of leaving you blind.

The face mask was supposed to protect you. It was made of metal covered with a thin layer of leather on each side, and was held in place by ribbons that you tied around the back of your head. The mask fitted over your nose, eyes and mouth, and the eyes were protected by thin metal plates with slots for you to see through while the mouth was covered by a layer of chain mail, hanging from the bottom of the shield and designed so that you could take a swift drink from your water container without having to remove the entire mask.

In practice these masks were not popular. It was hot inside a tank and as your face sweated it was difficult to keep the mask in place. Added to which it was hard enough to breathe anyway, inside a tank, without something pressing on your nose so many crew members chose not to wear them and took the risk of damage from 'splash' in their stride. **T**



Subscribe

THE TANK MUSEUM - THE WORLD'S BEST COLLECTION OF TANKS  
An Independent Museum and Registered Charity No 1102661



Tweet us @tankmuseum

## FROM THE EDITOR



Andrew Sawyer

As you are all aware after a 5 year tenure as Editor of Tank Times Nik Wyness has now moved on to pastures new.

As the new Marketing Manager here at the Museum, stewardship of Tank Times falls to me and I am determined that it continues not only to keep you up-to-date with all the exciting developments here, but is also an interesting and informative read.

I was particularly interested in David Fletcher's article on Private Forward's experiences – both fascinating and truly humbling, and a superb example of what I believe we do really well in bringing those stories to life.

I join the Museum at an exciting time in its development with the recent opening of the Vehicle Conservation Centre, the exciting new exhibitions that are planned over the course of the next two years and of course the beginnings of the First World War Centenary commemorations – we are going to be incredibly busy.

I would be really keen to hear from you with suggestions of content for future editions: from a favourite vehicle you would like us to focus on, to the sort of articles you would like to see.

I look forward to seeing you around the Museum when you are next visiting – please stop me and say hello.

Finally as this will be the last Tank Times of 2013, may I be the first to wish you all a Happy Christmas and a healthy and prosperous New Year. T

*A Sawyer*

Andrew Sawyer  
Editor



## SPOILS OF WAR OR LOOTING?



Throughout history, armies have collected souvenirs from the places where they have been fighting.

Although today it is illegal for a British soldier to take enemy or civilian property to keep for their own personal use, in the past soldiers often collected small personal reminders of a particular battle or conflict. From tourist souvenirs bought for their family back home, to battlefield relics, these items served as a stark reminder of a time when they may have come close to death.

The Museum has created a new display devoted to the objects soldiers have collected in the past. Some have a gripping story attached, like the cigarette case that saved Harry Bizley's life.

Whilst Harry was serving in North West Europe in 1945 with 49th Royal Tank Regiment, his squadron came under

fire and he and another person went to the aid of a wounded sergeant. A second volley of fire hit the other person, and severely wounded Harry.

Although he lost a leg, his life was saved by the cigarette case in his breast pocket. As he was about to be flown home a Medical Officer placed a bottle of champagne on the stretcher with the words: "You'll need this on the journey". The champagne had been taken from the German Army.

The Tank Museum has a large supporting collection of objects that help us tell the story of the people who served in armoured vehicles, and not just the vehicles themselves. These objects show the human face of warfare and help us build a richer picture of soldiers experiences in wartime. II



At the end of last year we received a generous bequest from a past Friend of The Tank Museum, Graham Edward Luke.

With funds raised from the sale of those items falling outside our collection policy, we have been able to purchase this pen and ink drawing by Fyffe Christie.

Incorrectly labelled by the artist as a Tiger tank, this Panther was drawn by Christie whilst serving as a bagpiper and stretcher bearer with the 9th Battalion, the Cameronians (Scottish Rifles).

Containing none of the shocking imagery usually associated with 'war art' his drawings were greatly admired by his comrades, and after the war he followed his ambition to become an artist.

Tanks are not a common subject in art, with wartime depictions more readily portraying the people serving or affected by the hardships of the time. We are therefore particularly appreciative of this bequest which has enabled us to add this fine example to our collection. II



### SUBSCRIBE FOR FREE!

The Tank Museum | Bovington | Dorset | BH20 6JG  
t: 01929 462 529 | e: tanktimes@tankmuseum.org  
The office is open Mon - Fri 9.00am - 5.00pm.

## WHAT'S ON



Saturday 7/12 - Sunday 8/12/13  
**Wartime Christmas Festival**

Take a step back in time and discover how Christmas was celebrated during the two world wars and beyond!



Saturday 25/01/14  
**Access All Areas**

Now includes entry to the floor of the Vehicle Conservation Centre. See the inner workings of The Tank Museum in this exclusive behind the scenes tour. Tickets £55 per person.



Saturday 5/4/14  
**Tiger Day 2014\***

Due to popular demand, The Tank Museum is hosting another Tiger Day; the essential experience for fans of the legendary Tiger Tank.



Saturday 28/6 - Sunday 29/6/14  
**TANKFEST 2014#**

Tickets are available now, as the World's best display of moving armour returns to The Tank Museum.

#You may not use your Annual Pass for re-admission on these dates.

\*For The Premium Tiger Day Experience, tickets can be bought online. For the public event Annual Pass holders will be admitted free.

# Bookworld Wholesale Limited

Incorporating Avid Reader Mail Order Books  
**UK Distributors of Tankograd**

## MODELLING TREES



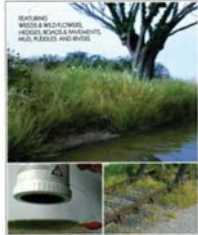
**Modelling Trees Part One - Broadleaf Trees** 92 pages, full colour.  
**£19.95**

## MODELLING TREES



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

## MODELLING GRASSLAND AND LANDSCAPE DETAILING



**Modelling Grassland & Landscape Detailing** Featuring Weeds and Wild Flowers, Hedges, Roads and Pavements, Mud, Puddles and Rivers by Gordon Gravett. This book is a great follow up, to the two books published on Modelling Trees. Full Colour, 108 pages. **£24.95**

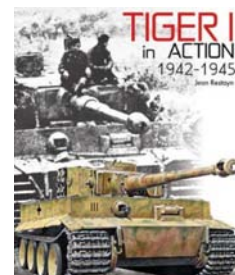
## IMAGES OF WAR RUSSIAN ARMOUR IN THE SECOND WORLD WAR



**Images of War Russian Armour in the Second World War** by Michael Green This latest book in the Images of War series paints a broad picture of Russian tanks and AFVs that defeated the might of Hitler's Panzer Armies. 208 pages. **£14.99**



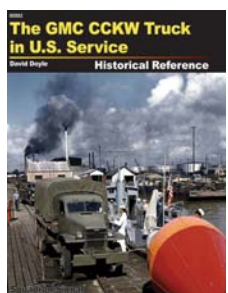
**Tank Art Volume 2 WWII Allied Armor** by Radek Pituch There are 5 models featured inside, 4 dedicated technique chapters, plus a special bonus figure modelling chapter. Over 500 colour photos. reproduced in a large format. **£20.99**



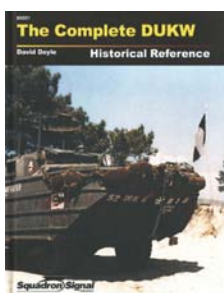
**Tiger 1 in Action 1942-1945** This edition has been revised and augmented, with more accurate captions as to dates and locale, together with new illustrations and a chapter on additional units. 288 pages - perfect bound. **£34.00**



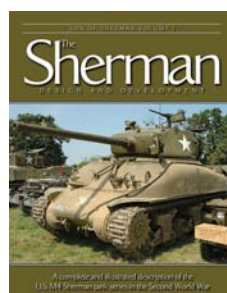
**Officers and Soldiers 21 - French Chasseurs a Cheval Volume 3** This third part illustrates the last years of the Empire; dark years which saw the "Chasseurs" being gobbled up during the Russian disaster. Full Colour, 83 pages. **£15.00**



**The GMC CCKW Truck in U.S. Service.** Illustrated with over 1200 vintage colour and black/white photos, most of which have never been published, plus detailed line drawings. Hardback, 504 pages. **£45.99**



**The Complete DUKW Historical Reference.** 75,000 word book packed with archival photos detailing the origin, design, and changes throughout production plus wartime use. 750 photos, line drawings, colour profiles. Hardback, 304 pages. **£39.99**



**Son of Sherman Volume 1: The Sherman, Design and Development.** A complete and illustrated description of the U.S. M4 Sherman tank series in WW2. Over 900 b&w and colour photos. Paperback. 386 pages. **£38.99**



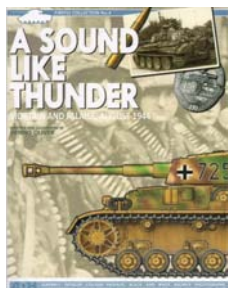
**Abrams Squad Volume 2: The Modern Modelling Magazine.** BTR-70 Russian Battle Steed, The new Beast of Meng: Tiger, M42 Duster plus much more! Full Colour, 68 pages. **£9.99**



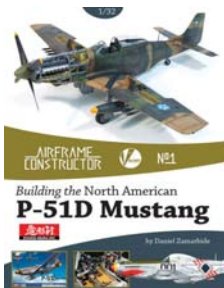
**Build & Convert Volume 7 - Classics Warplanes** This latest edition offers a selection of newly-commissioned articles by Alec Smith, looking at some of 'tomorrow's classics' new toolings of old favourites, brought up to date. 98 pages, full colour. **£9.99**



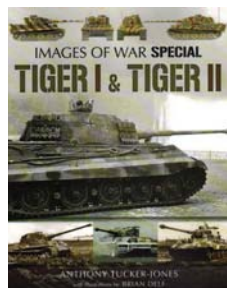
**The Weathering Magazine Volume 5 'Mud'** This issue describes in-depth the techniques to create mud effects in all forms and environments. As always these techniques will be demonstrated by some of the most talented modellers from around the World. 70 pages, full colour. **£8.99**



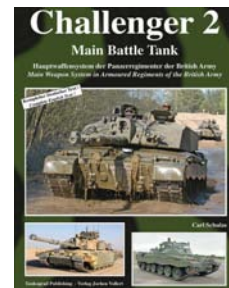
**Firefly Collection No.4. A Sound like Thunder: Mortain and Falaise August 1944.** The latest publication from Oliver Publishing covers German armour during the last battles of Normandy. Full colour artwork depicting over 40 different vehicles. **£14.99**



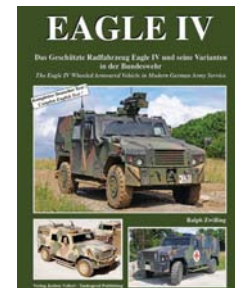
**Airframe Constructor No.1: Building the North American P-51 Mustang.** Covering construction and finishing of the 1/32nd scale Zoukei-Mura kit in forensic detail, but in a manner which demystifies the whole process of building such a complex kit. 64 pages, full colour. **£11.95**



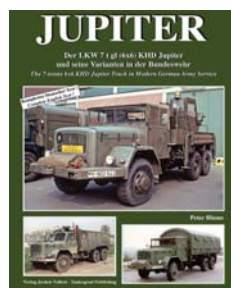
**Images of War Special Tiger I & II.** Anthony Tucker-Jones's expert account of these remarkable fighting vehicles is accompanied by a series of colour plates showing the main variants of the designs and the common ancillary equipment and unit markings. 176 pages. **£14.99**



**Tankograd 9021 - Challenger 2** Main Weapon System in Armoured Regiments of the British Army. First fielded in 1998, the Challenger 2 MBT is the main weapon system in the armoured regiments of the British Army. Illustrated with 139 colour photographs, 64 pages. **£13.99**



**Tankograd 5045 - Eagle IV** The Eagle IVs being procured have already replaced many unprotected vehicles of the Bundeswehr to increase the safety of soldiers during missions abroad. Illustrated with 135 colour photographs, 64 pages. **£13.99**



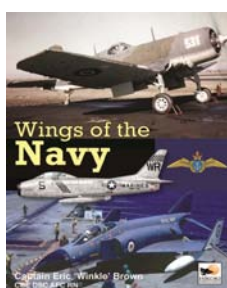
**Tankograd 5044 - Jupiter** The 7-tonne 6x6 KHD Jupiter Truck in Modern German Army Service. The Jupiter is one of the legends of early Bundeswehr trucks. Illustrated with 69 colour photographs, 71 b&w photographs and 36 drgs. **£13.99**



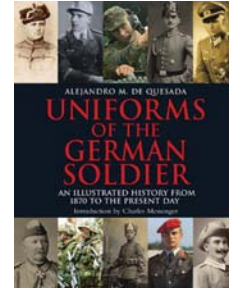
**Tankograd 4020 - Panzerkampfwagen (Somua) 35 S - 739 (f).** The French Somua S35 Tank in German Service 1940-45. This monograph shows the tank's technology, variants and service in unprecedented detail with 130 b&w photos. **£13.99**



**Tankograd Militärfahrzeug 4-2013** Chapters include: Marder 1A5A1, Leopard 2, M1 Abrams, War & Peace Revival, Foden Recovery, fully illustrated, 56 pages, Please Note - German Text Only. **£9.99**



**Wings of the Navy** Highly illustrated with cutaways, photos and colour profiles, this book makes a valuable contribution to aviation history, keeping the memory of these aircraft alive. 343 pages, 300 b&w photos and 100 colour profiles. **£34.95**



**Uniforms of the German Soldier** Tracing the evolution of German Army uniform from 1870 to present day. Nearly 800 photos with detailed caption, explain interesting aspects of the soldier's uniform, insignia and equipment. **£45.00**



**Panzerwaffe on the Battlefield.** World War Two photobook series Volume 3. Fully illustrated with Black/White photo's. 112 pages. **£23.99**

Bookworld Wholesale Ltd.  
Unit 10 Hodfar Road, Sandy Lane Industrial Estate,  
Worcestershire, DY13 9QB  
Tel: 01299 823330 Fax: 01299 829970

Stourport,

YOU CAN VISIT OUR WEBSITE: [www.bookworldws.co.uk](http://www.bookworldws.co.uk)  
Major Credit Cards Accepted, UK Cheques Payable To: Bookworld Wholesale UK  
Postage Single Book £1.95 Two or More Books £4.00  
Overseas Airmail Please Add 15% of Order Value, Minimum £4.50

# SHOW REPORT 2013

## YORKSHIRE WARTIME EXPERIENCE

After a wet inaugural show, the sun shone in abundance for the second holding of the Yorkshire Wartime Experience



### ABOVE...

The Russian T-34/85 tank is a relatively common sight at larger shows, but this one is a genuine wartime vintage example.

**T**he first Yorkshire Wartime Experience show held near Bradford couldn't have been much worse for the organizers who, like the rest of the country, coped as best they could with record breaking rainfall in 2012. Thankfully the sun shone for this year's early July event and what a difference it made to this great show, with a fantastic turn out of military vehicles and living history groups covering a range of historical periods.

Arriving at the 30 acre site

situated off Hunsworth Lane near Bradford I was greeted by a much larger collection of traders this year, selling a wide range of products, with everything available from vehicle parts, militaria and uniforms to books, weapons, models and craft type products and even included a full-size replica Spitfire providing some great photo opportunities for visitors.

Moving further into the sprawling show site I began my trek past the arena and up to one of show fields containing the wartime vehicles,

passing a number of exhibits and living history encampments on the way. There were more than thirty different living history groups in attendance, covering a variety of periods, from the First World War to modern day warfare, representing British, German, American and Russian troops and combining a great many real and replica vehicles, many of which took part in the various battle re-enactments and displays taking place in the arena throughout the show.

**RIGHT...**

Lovely example of the American WW2 M16 Multiple Gun Motor Carriage taking part in the arena displays.

**BELOW...**

Amongst the many wartime softskins was this Austin Tilly.

**BELOW RIGHT...**

Field Marshall Montgomery's Rolls-Royce Phantom II was one of the star exhibits of the show.



**RIGHT...**

The event attracted a large number of artillery pieces and here we see a pair of 5.5-inch howitzers on display.

**BELOW...**

Classic British World War Two Morris-Commercial C8 artillery tractor.

**BELOW RIGHT...**

This M3A1 Scout Car was one of a large collection of wartime American armour in attendance.





## VEHICLES

Obviously it was the vehicles I was really there for and there was no shortage of superbly restored vehicles to see, many of which were real rarities. For a comparatively new show the Yorkshire Wartime Experience attracted more than its fair share of tracked and armoured vehicles, with a fine collection of American half-tracks, Scout Cars and a selection of tanks and tank destroyers and a genuine wartime production T-34/85 tank.

Also there, though sadly sidelined by a mechanical problem and therefore displayed only

### ABOVE...

'Little Charlie' - a beautifully restored Allis-Chalmers M4 High Speed Tractor.

### RIGHT...

Various pieces of artillery were displayed in authentic dug out positions on the brow of the hill.

### FAR RIGHT...

Not just a Land Rover 90, but a range warden's observation vehicle.



### BELOW...

This Albion truck dating from the Great War was the oldest vehicle at the show.





## LEFT...

Guy Ant, a rare British vehicle, and a particularly good looking truck to my mind.

## ABOVE RIGHT...

The M8 Greyhound armoured car, another of the many classic WW2 American armoured vehicles at the show.

## LEFT...

The arena saw many of the vehicles being displayed to the watching crowds.

## ABOVE RIGHT...

The Fordson WOT 3 general service truck is a rare vehicle these days.

## LEFT...

The 25-pounds were well crewed and well drilled, taking part in various displays.

## RIGHT...

Amongst the various post-war armoured vehicles was this CVR(T) Sabre, pictured in the arena.



on its transport trailer, was the 1936 Vickers Carden-Loyd utility carrier we mentioned in our pre-show coverage, but it was nice to get a closer look at this rare little vehicle. Another rarity, and like the Carden-Loyd it too was mentioned prior to the show,

was the 1936 Rolls-Royce Phantom II that was used by Field Marshall Bernard Montgomery as a staff car during WW2, which were it not for the history behind it, would have looked a little out of place at a military vehicle show.

Wartime softskins of all types

were in abundance at the event, with British wartime vehicles in plentiful supply along with the obligatory collection of Jeeps, Dodges and GMCs, but the First World War was represented by the newly restored Albion military truck, as featured in the October

## BELOW...

Another of several examples of American WW2 half-track on display at the Yorkshire Wartime Experience.



# SHOW REPORT 2013



## ABOVE...

Complete with 'tank riders' an M24 Chaffee takes part in one of the daily arena displays in front of large crowds.

## ABOVE RIGHT...

The M3 half-track is relatively common, but the Autocar M2A1 shown here is a much rarer vehicle.

## RIGHT...

M3 half-track, fitted with a front mounted winch in place of the front roller seen on many.



## ABOVE...

Sadly the Carden-Loyd Utility Carrier was sidelined with problems on the day of my visit and never left the trailer.

## RIGHT...

The M36 Jackson was the American equivalent to the British M10 Achilles tank destroyer.

Seeing a pair of former Soviet BRDM-2 scout cars was a bit of a surprise, and they were joined by a GKN Tactica armoured car on the other side of the field, which I remember seeing going through an MoD sale some years back. In the same field was an Abbot self-propelled gun, a replica Light Strike Vehicle and what looked to be a standard Land Rover 90, but turned out to be a rare range wardens observation vehicle!

As with any of these shows it's possible to ramble on and on about what was and wasn't there,

but I don't intend on doing that, instead I'm going to let the photos do the talking and suffice to say I thoroughly enjoyed the event and would certainly recommend a visit next year and congratulations must go to Stuart Wright and his fellow show organisers for creating such a good event from scratch. Sadly I only have room for a small selection of photos from the many vehicles at the show, but if you go to the website below you'll find a bigger selection of images from the 2013 show. Visit: [www.ywe-event.info/](http://www.ywe-event.info/)





**GA PROMOTIONS**  
**INDOOR MILITARIA FAIRS**

# **MALVERN**

## **November 17th 2013**

**Admission £5 - Doors open 9am - 3pm**  
**Three Counties Showground**  
**Malvern, Worcester WR13 6NW**

***Come and get a great bargain at Malvern!***

**Children under 14 FREE**

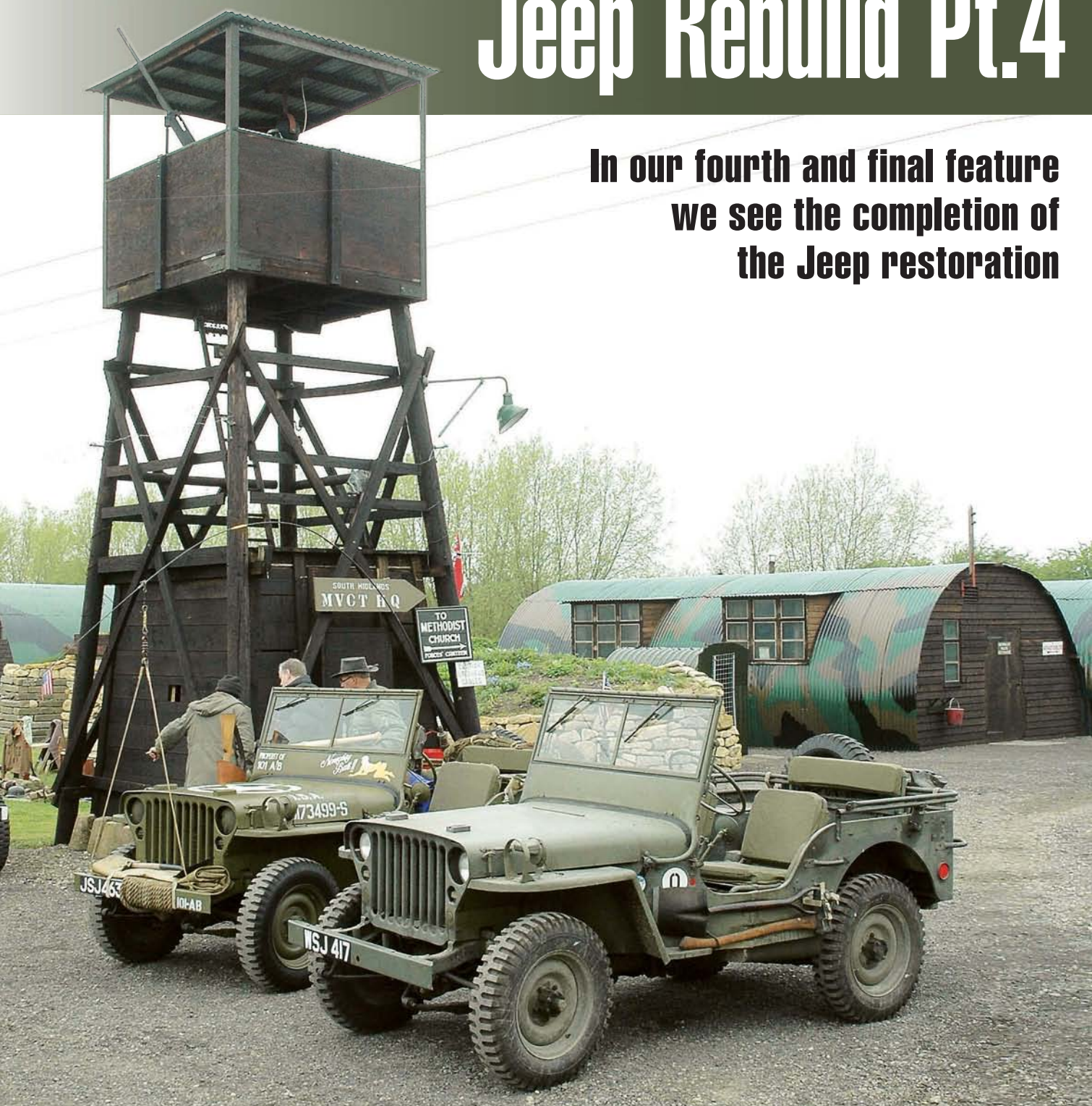


**Free parking at all events**

**GA Promotions 67 Atcham Business Park,  
Atcham, Shrewsbury, Shropshire SY4 4UG, England.  
Tel: 01743 762266 Fax: 01743 762277  
[www.militaryconvention.com](http://www.militaryconvention.com)**

# Jeep Rebuild Pt.4

**In our fourth and final feature  
we see the completion of  
the Jeep restoration**



## **Above...**

Bob James' Farm incorporates Ashdown Camp, a replica WW2 military camp and an ideal venue for military shows.

Last month saw the body tub being reunited with the chassis and the Jeep finally back on four wheels and this month the final finishing off will be taking place. It's probably fair to say that this final stage is one of the most time consuming tasks of the restoration, with numerous small parts to be cleaned up, repainted and fitted back on to the vehicle. Even leaving aside parts such as the many brackets, hood frame parts, lights etc. there are many pieces to

be added to the inside of the vehicle such as the instrumentation, seating and reconnecting all the controls.

The electrical system can be the cause of some problems, especially if the original wiring is used and there is corrosion present on the terminals, which can lead to many hours trying to trace faults, but fear not, if the wiring loom is beyond repair there are brand new replacements available, and these copy the original in virtually every respect, including appearance so it

won't detract from the originality of the vehicle.

The various covers in the bodywork that blank access holes or cover the holes where the steering column and foot pedals enter the body will also need to be refitted, but not until everything is in place, tested and fully working, otherwise you might find yourself having to remove them again. The same goes with some of the other items such as the front bodywork, which is notoriously difficult to align and



1

2

3

takes some patience on the part of the builder.

I found that loosely assembling the major parts such as the wings and front grille and then pinching up the bolts once I was happy with the alignment was the best way to proceed, in fact the same method can be applied to many areas of the final assembly. It should also be noted that the front wings and grille are best left

off until the engine is in place as it makes lifting the engine in place and aligning it with the bell housing of the gearbox so much easier, but it is best to pre-paint these items to avoid hours of masking off when applying the final coat of paint.

### IT LIVES!

With the engine reunited with the gearbox and bolted in place there are

numerous other parts to add before the engine is fired up for the first time. The exhaust pipe is best fixed in place, if only to reduce noise, and the various coolant pipes and rubber joints will need to be connected once the radiator is in situ. The throttle cable and choke cable also need to be connected and adjusted and the air cleaner can also be added.

Once everything is in place and all the fluids are filled and topped up to the correct level and fuel is in the tank the battery can be added and the engine tested. As it turned out the engine in Bob's Jeep fired up first time and following a few minor adjustments to the mixture and idle speed was running sweet as a nut and with the engine it also provided the opportunity to double check the

1

The Jeep may look more complete with the engine, wings and front grille in place, but the holes on the body show how many detail parts have yet to be fitted.

2

The semi-complete Jeep still needs the grab handles, hood frame brackets, lights, reflectors and numerous other parts fitting before final painting can take place.

3

Even the interior of the Jeep has lots of fixtures and fittings such as the instruments, switches and windscreen catches shown here.

4

The Jeep is starting to look a bit more like a finished vehicle with the seats in place. To have parts strewn everywhere inside the vehicle is pretty normal during a rebuild.



### Above...

Jeep owners are a friendly bunch and generally are only too happy to chat to people about their vehicles so if you're thinking of getting one get chatting to Jeep owners to get an insight into ownership.

### Right...

Not all Jeeps were green, in fact there's a surprising number of colours for owners to choose from.



## JEEP REBUILD

5

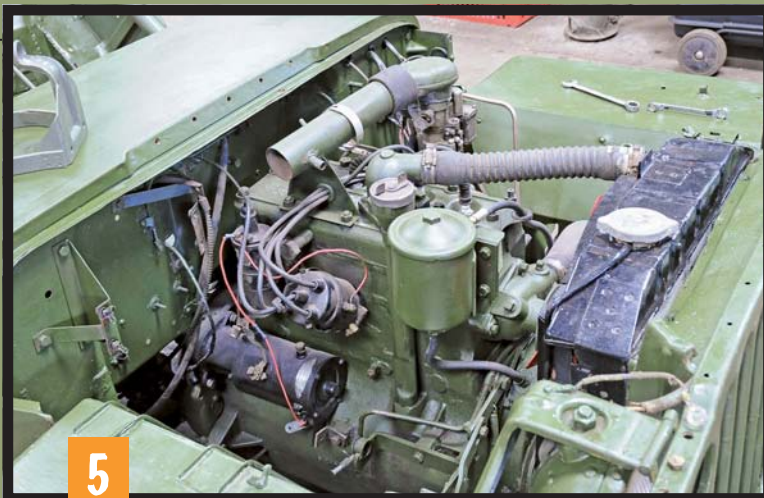
Many of the ancillary parts such as the starter motor, distributor, oil filter etc. can be fitted to the engine before it's put back into the vehicle.

6

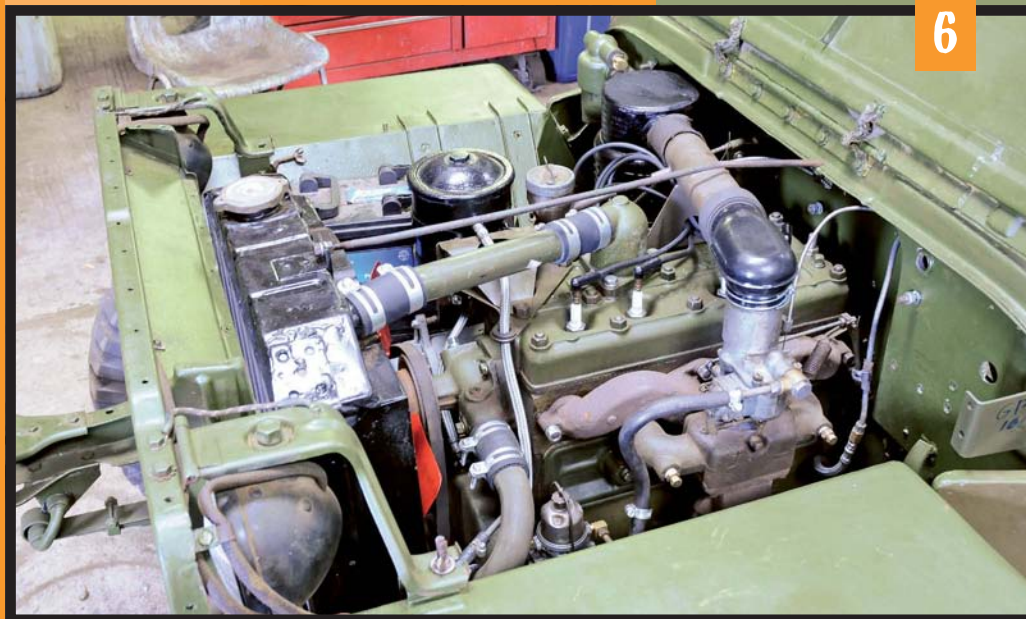
With the engine in place and all parts fitted and connected the engine fired up first time and after a few minor adjustments was running like a dream.

clutch, gearbox and brakes were all operating as they should.

Once the Jeep is moving and driving under its own power the restoration process is nearly complete. The addition of the final few fixtures and fittings saw the Jeep ready for the final coat of paint, blending together all the various new parts, and once the paint is applied and dry the final finishing touches can be added. Items such as the various webbing straps, hood, seat cushions and the like will complete the vehicle, and depending on how



5



6

far you want to go, unit markings can be applied either by paint and stencil or stickers.

Sadly for us Bob's Jeep was sold even before it was completed, in fact it sold so quickly that I didn't even get a chance to take the final photos of the fully finished vehicle! However, the purpose of these articles has not been to take pretty pictures but to offer something of an insight into the processes involved in restoring a wartime Jeep, and to show that it's not as difficult as you might think, which should hopefully encourage more people to have a go at restoring a Jeep for themselves.

Obviously this is a very brief account of the restoration process, to go into every minute detail and every possible contingency who need a book, but the Jeep is a relatively simple vehicle and anyone with a basic knowledge of car mechanics and DIY should be able to complete the task, and if not there are plenty of specialist companies out there willing to restore your Jeep for you, so get out into that shed and start restoring!

### Below...

The thing with the Jeep is that there are numerous ways to decorate and finish off your vehicle, ranging from gun mounts and stowage to unusual colour schemes and specialist variants.

### Below Right...

Bob has been restoring Jeeps for many years, this is a slat grille Jeep he restored and sold some years ago.



A huge thanks has to go to Bob James, for his help with these features and allowing me to take the photos for the feature in his workshop and I hope that our readers will find them of use when contemplating their next Jeep project. Bob's involvement with military vehicles over the years also saw him get involved with the local Wartime in the Vale Show, with his farm playing host to this popular event and we'll have a report on this year's show in next month's issue.

## CLASSIC NUMBER PLATES

from £20  
per pair



Specialists in the manufacture & supply of all forms of number plates for your tractor & other vehicles from classic to the modern day.



The Number  
Plate Centre  
(Incorporating  
First Plate)



Trade & Wholesale enquiries from UK  
& Worldwide welcome

Tel: 0121 773 8107 Fax: 0121 772 8136

Email: davidcollier58@hotmail.co.uk

Unit 13, 272 Montgomery Street, Sparkbrook, Birmingham, B11 1DS

www.thenumberplatecentre.com

# MILITARY MACHINES

INTERNATIONAL

## To advertise

Contact Jill Lunn Tel: 01780 755131

Email: jill.lunn@keypublishing.com

## WWW.JEEPWORLD.CO.UK

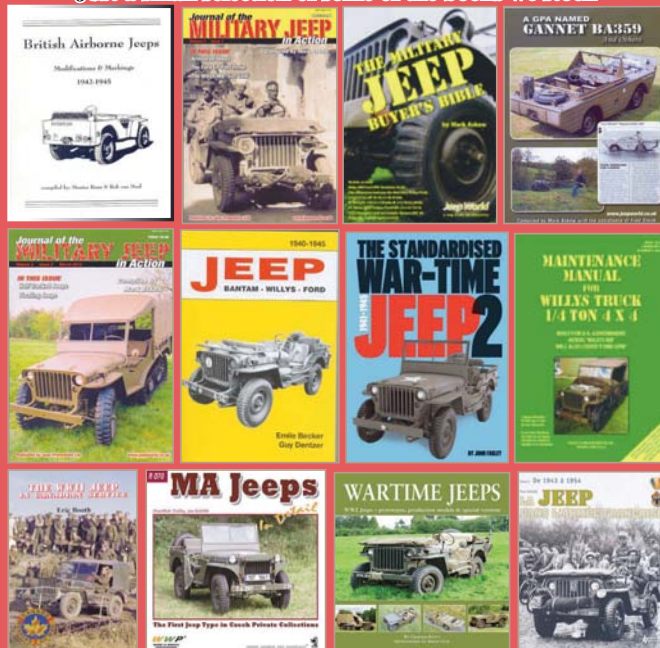
For all your Military Books, Jeep Books & Manuals too.

Buy online and see our full range.

Or Call 01302 739000

Worldwide Mail Order Service

Just a small selection of some of the books we stock



*We carry books on Jeeps, Tanks, Trucks, Half-tracks, Motorbikes to Uniforms and 1940's ladies fashions and much more!!*



# Stop with Us

## Component parts for Older & Classic Vehicles

### Cars, Trucks, Buses, Fork Lift Trucks

### Plant & Agricultural and Specialist Off Highway



BEFORE

**Stainless Steel Sleeving for all types of  
Hydraulic Brake and Clutch Cylinders  
and Remote Brake Servos**



AFTER

**Master & Wheel Cylinders, Brake Servos, Seal Kits & Spare,  
Brake & Clutch Hoses, Brake Pads & Shoes, Brake Discs & Drums,  
3 in 1 Clutch Kits, Clutch Covers, Plates & Bearings,  
Steering & Suspension, Wheel Bearing Kits, Waterpumps**

**T: 01284 750729**

**F: 01284 756240**

**W: www.pastparts.co.uk**

**E: restore@pastparts.co.uk**

**Please Quote**

**Ref "MM313"**

**to receive a**

**10% discount**

**Past Parts Ltd**

**Unit 4 Chase Rd**

**Northern Way Ind' Estate**

**Bury St Edmunds**

**Suffolk IP32 6NT**

# Dennis **Part 2** the Menace

**Tim Gosling**  
concludes his article  
on the restoration  
of his WW1 Dennis  
subsidy lorry



## **ABOVE...**

On the road to Brighton in May 2011. The Dennis performed faultlessly, making a very good turn of speed.

## **LEFT TO RIGHT...**

Our first glimpse of the bronze wheel as the differential came out of the axle. Covered with sand and quite worn but still useable.

Having been dismantled, cleaned and rebuilt the differential is dropped back into the axle. Quite a difficult task due to the weight necessitating an engine hoist.

The worm shaft coupling had been open to the elements and was badly corroded so a new one was made over night by wire erosion.



#### BELOW...

This rare photograph of a Dennis carrying the New Zealand fern leaf marking inspired us to mark our Dennis in the same way.

**B**y the end of the Great War Dennis had produced approximately 3,500 of their Subsidy Lorries. The majority of these were issued to the Army Service Corps, but some also went to the American expeditionary Force and to the Anzacs. With the end of the conflict the War Department started disposing of their surplus vehicles and many of the Dennis lorries quickly found new homes with commercial vehicle operators hauling passengers or a variety of goods. Another 20 years of hard labour saw most of these lorries end up abandoned on farms or gone for scrap with the few survivors having found alternate uses

either as trailers, or incorporated into the structure of buildings. The chance of finding any surviving parts today is very small indeed.

#### WHAT LUCK

In the last issue I commenced the story of the restoration of my 1918 Dennis subsidy lorry, but with the deadline of its first show rapidly approaching, work carried on at an increased pace. At this stage of the story the restoration had been progressing for nearly five years and all we had to show for it was a rolling chassis and a large pile of parts requiring attention. We did have some very useful documentation in

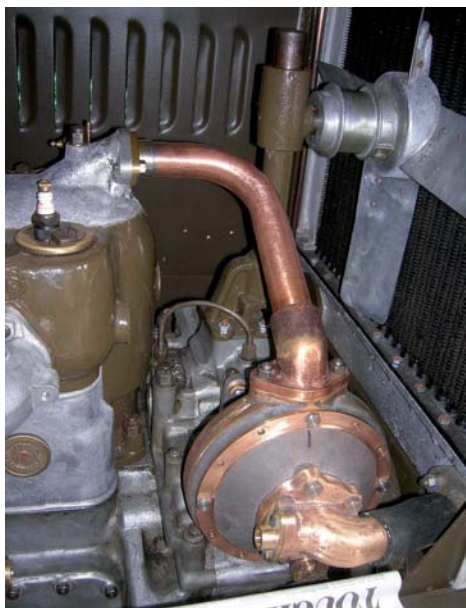
#### BELOW LEFT...

Once stripped down and rebuilt the White and Poppe engine was gently lowered back into the chassis.

#### BELOW...

The gearbox build was a very challenging part of the restoration. In the foreground is the repaired case with the corroded gearbox behind it about to have its internals stripped out.





#### TOP LEFT...

The new fuel tank was tested for leaks. It only had one small one, which was quickly fixed.

#### CENTRE LEFT...

MDF was used to make a set of patterns for the water pump, due to it having no grain and being very easy to work with.

#### BOTTOM LEFT...

Making a new water pump was the most challenging part of the restoration. Once back from the foundry and machined the new pump was fitted to the engine.

the form of a manual, parts book and access to the original drawings, and proved to be incredibly useful. As an example we made a replacement drive shaft within 10 days of obtaining the drawing.

In 2006 we were given a prop shaft and torque tube from a slightly later Dennis. We thought we might have to adapt this to fit but when we measured it we realised that the design had not changed and it dropped into place perfectly. Another concern was the missing the steering column. The owner of an earlier Dennis bus had the correct one that we needed but wouldn't relinquish it unless we found him a replacement. Amazingly we were then given the correct steering box for the bus, which we then swapped for the one that we needed. Steve then set to and refurbished the steering and made a

new hand throttle and advance and retard controls using the originals for patterns.

## FABRICATION

Although we had most of the parts we needed they were generally in very poor condition. For some reason our surviving scuttle had been cut neatly down the middle with one half disposed. Using the surviving half as a pattern we fabricated a new one. The curved corners were obtained by cutting the steel into 'fingers', bending and welding them into position. After tidying them up with a grinder they looked perfect. Steve (having access to an original fuel tank to measure) then set to making a replica. He had a piece of steel sheet rolled into a cylinder and then spun the ends for it on his own lathe. The ends were then riveted into place and soft soldered



to make the tank watertight. This was finished off with a copy of the original cap and then the tank was fitted into position on the lorry.

Despite being full of a thick sludge and having a crushed oil filter, the engine was in a remarkably good condition. It was completely dismantled, cleaned, painted, reassembled with replacement valves and then fitted into the chassis, however, the gearbox would present a bit more of a challenge.

We had three gearbox cases, one was completely rotten, one was broken, and the pivot points for the handbrake on the third one were very fragile. Short of viable options we took the third one, completely

#### TOP RIGHT...

The pattern for the steering wheel was made out of MDF and enabled us to make a perfect replica of the original.

#### ABOVE LEFT...

We were lucky to have access to the original drawings in order to make the correct pattern wooden body.

#### LEFT...

The drivers seat resembled a church pew and once completed had to be lifted over the body to sit around the petrol tank. This was a tricky job and required six pairs of hands.

#### BELOW LEFT...

The markings were all applied by hand, but incredibly we had been able to borrow the original stencils, which had been used at the Dennis factory during the war.

dismantled it, cut away the rotten aluminium and replaced it with a steel fabrication, which we then bolted to the case. The gears inside this case were quite rusty, but the gears inside one of the other cases were very good so we transplanted the contents from one to the other. The end result was a new looking gearbox, which we dropped into the chassis.

We then turned our attention to the differential. While on the beach and with the prop shaft and torque tube removed the axle had rotated on its own axis and had been upside down. This had actually been a good thing as the oil had run to the top, thus preventing the steel worm from corroding too badly. Once removed we could see that both the worm and the wheel were heavily worn from use, but were still quite useable. That was not the case with the worm shaft coupling, which having been exposed to the elements was very corroded and needed replacing. The internal splines were made by wire erosion (the first time we used this method) and the end result was perfect. We



put new bearings into the differential and then dropped it back into the axle.

## BIG CHALLENGE

We still had one of the most challenging parts of the restoration still to complete, and that was to make a replica water pump. We had been hoping for an original to turn up but with time moving on and no leads forthcoming it was now time to bite the bullet. We knew of an existing one that the owner invited us to look at and while it was already dismantled we measured it and took nearly 200 photographs from which Steve produced a set of drawings. He made patterns out of MDF, which were taken to our local foundry and then, with the castings duly returned, and with a great deal of machining, we had a water pump indistinguishable from the original.

By August 2010 we were ready to start the engine for the first time. We had sourced the correct Claudel Hobson carburettor, filled the engine

and gearbox with oil, the radiator with water, fabricated the exhaust and had the fire extinguishers ready. On the sixth pull of the starting handle it fired and ran faultlessly for 10 minutes. We identified a couple of hose clips and a valve plug, which required tightening but other than that it was fine. At that stage it was suggested that we entered it for the 2011 London to Brighton run in the following May. A date, which at the time seemed a very long way off.

## FINISHING OFF

Another important part that we were missing was the steering wheel. We knew it should have five spokes and a 19" diameter with eight finger grips between each spoke, so using MDF fixed to a steel core Steve made a pattern and took it to a foundry where a perfect replica was produced. Originally it would have been covered with Bakelite around the rim, but it was suggested that we try powder coating instead and I have to say the end result was indistinguishable from an original.

We had access to the original body plans and a good friend who is an

experienced carpenter sourced and prepared the wood for us. We forged the metalwork at home and using all the coach bolts we could find, the body came together very quickly. The seat had the same proportions as a church pew (only heavier) and this had to be lifted by hand and dropped down over the fuel tank with about one inch clearance.

We received notification of acceptance for the London to Brighton with just nine weeks to go and with time running short, the body was finished off. The cab roof frame we made at home and taken to a canvas manufacturer who made an excellent job of fitting it with canvas and also produced the canvas for the body. The Dennis was fitted with replica tail light and headlight brackets, but we had two original sidelight brackets. Some years previously we had acquired a complete set of original lamps to fit on them. Finally we fitted the hood bows, foot step, mud guards, cab floor and the throttle linkage. A week before the London to Brighton it moved under its own power for the first time and having completed a one-mile journey to the end of the lane and back the Dennis performed faultlessly.

## LONDON TO BRIGHTON

The following Saturday we loaded the Dennis on to a flatbed lorry and caught up with it the following day in London. It attracted some interest as we unloaded it at Crystal Palace and at 7:20am we set off on our 50-mile journey to Brighton. At 12:55 we rolled over the finishing line on Madeira Drive, the perfect culmination of ten years work. With us we had a special passenger, Mick Giles, the man who rescued the Dennis chassis from scrap 20 years before and who had gathered the parts which made the whole restoration possible. Judging by his smile he had enjoyed the journey as much as we had done!

### ABOVE LEFT...

I think we were all holding our breath as we loaded the completed Dennis on to the back of the transporter lorry.

### BELOW...

The Dennis makes a fine addition to the Gosling stable of early trucks.



# Witham's Tender

MMI reports from the latest MoD Tender Sale at Witham Specialist Vehicles



## ABOVE...

Hundreds if not thousands of Bedford 4-tonne trucks have gone through the sale, but occasionally one or two stand out from the crowd, such as 'Normandy Landings'.

## RIGHT...

Another pair of Combat Engineer Tractors were listed, having been replaced by the now in-service Terrier.

As the long hot summer of 2013 continued the latest sale of ex-Ministry of Defence equipment took place at the Colsterworth site of Witham Specialist Vehicles and I made the 200 mile round trip to see what was on offer. Arriving on site is a little less formal than it used to be years back when the MoD Tender Sales first began, with visitors having to sign in and don hi-viz vests for obvious health and safety reasons, after all there are some pretty big machines moving around the site.





#### ABOVE...

You have to wonder where this Rubery Owen four-wheel trailer dating from the 1950s has been hiding all these years?



#### ABOVE...

Some of the Land Rover Wolf 90s coming through the sales recently have been in tidy condition.

#### ABOVE RIGHT...

Another of the CVR(T)s in need of some TLC, this time a Sultan command vehicle with the distinctive raised roof level.

#### BELOW...

This group of CVR(T) Sabres were listed as being for 'Spares or Repair' for obvious reasons!

Apart from the usual collections of Land Rovers and Bedford 4-tonners, which incidentally should be coming to the end of their disposal very shortly, there were a few choice pieces, such as the Wolf 90 Land Rovers that offer the ruggedness of a military vehicle combined with the cruising speed of a modern day car. Also on view was a palletted ex-Dutch Army Land Rover Lightweight that would no doubt go to a collector and in the event fetched well over £4,500, just a £1,000 less than the much newer Wolf 90.



A pair of the curious six-wheel Rousch EOD vehicles were once again up for grabs and beside it was another EPS Springer buggy. I must admit I had a close look at the Springer with a view to putting a bid on it as I've always wanted one since testing one out on the MoD Long Valley test track, something I will never forget as it was so exhilarating, however, I decided not to bid in the end, realizing that my savings couldn't match the typical asking prices of these little off-road rocket machines!

#### ABOVE...

This 1987 Land Rover 110 was pretty tidy for the age.

#### TOP RIGHT...

I still dream of owning one of these little speed machines, but my desire isn't matched by my bank balance at the moment!



#### ABOVE...

Anyone who bought one of the Snatch Land Rovers that went through the sales must have been looking at these Rover V8 engines.

#### LEFT...

The CVR(T) Stormer featured an extended hull with an additional wheel station and type specific running gear.



#### ABOVE...

This ex-Dutch Army Land Rover Lightweight fetched nearly as much as the much newer Wolf 90s.

#### ABOVE RIGHT...

Amongst the Leyland DAF 4-tonners was this one fitted with UBRE equipment.

#### BELOW...

Row of Leyland DAF 8x6 DROPs vehicles complete with Multilift hydraulic loader – a useful bit of kit.

## BACK TO BUSINESS

Having had my bit of fun it was time to get back on with the business of searching out the next items to photograph and it wasn't long before I'd found some of the armoured vehicles, which included a Combat Engineer Tractor and a number of CVR(T)s in varying states of repair.

Nearby was an old Rubery Owen four-wheel trailer with an

accommodation cabin that must have dated from the 50s and heaven knows where it's been hiding all these years? For those who purchased the Snatch Land Rovers that were offered in great numbers a few years back there were some reconditioned Rover V8 petrol engines listed, which would have been worth picking up as the Rover V8 is getting harder to find these days.

Amongst the trucks I found another pair of Foden wreckers hidden away at the back of the truck park, and a little further down the line I came across a Leyland DAF 4-tonner fitted with UBRE (Unit Bulk Refuelling Equipment) rig, and a Bedford 4-tonner bearing the name 'Normandy Landings' on the driver's door, which was a little unusual.

No doubt I'll be back for the next tender sale, which hadn't been announced at the time of writing, but you can keep an eye on what's up for grabs at Witham Specialist Vehicles by logging on to their website at: [www.mod-sales.com](http://www.mod-sales.com)



# 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/](http://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 Carries • Camouflage Netting • Etc

**WITHAM (SPECIALIST VEHICLES) LTD**

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

Address : Honey Pot Lane, Colsterworth, Grantham, Lincs, NG33 5LY

Tel : 01476861361 Fax : 01476861441 Email : [sales@mod-sales.com](mailto:sales@mod-sales.com)

## EUROPE'S BIGGEST SELLING MODELLING MONTHLY

**DECEMBER ISSUE** OUT 7 NOVEMBER



**ONLY  
£4.10!**



**FREE 2014  
CALENDAR**

THIS HIGH-QUALITY A4 CALENDAR  
IS THE PERFECT ACCOMPANIMENT  
TO THE YEAR AHEAD!

**VERTICAL PIONEER**

STU FONE EXPLORES THE FIRST OF  
THE OPERATIONAL BREED, WITH AN EXCLUSIVE TEST-  
SHOT BUILD OF AIRFIX'S NEW-TOOL HARRIER GR.1

**WOLFPACK LEADER**

PETE WATSON TURNS HIS HAND TO A BUST OF LEGENDARY US AIR  
FORCE PILOT.

**AND MUCH MORE!**

Available from **WHSmith** and all other leading newsagents

**ALTERNATIVELY, ORDER DIRECT:**

Order online with FREE P&P\* at  
[www.keypublishing.com/shop](http://www.keypublishing.com/shop)

\*Free 2nd class P&P on all UK & BFPO orders. Overseas charges apply.  
Postage charges vary depending on total order value.



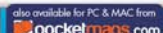
OR



Call (UK) **01780 480404**  
(Overseas) **+44 1780 480404**  
Lines open 9.00am - 5.30pm



Also available on



Search:  
Airfix Model World

**FREE App with Sample Issue. In app issues £3.99**

\*App prices subject to change. UK scheduled on-sale date.



# WAR & PEACE REVIVAL

**SIMON THOMSON** TAKES A LOOK AT THE  
ARMOURED VEHICLES AT THIS YEAR'S SHOW

## PART 2



### ABOVE...

Andrew Baker's diesel powered Scimitar has recently been fitted with a full set of stand off bar armour, as used by vehicles currently operating in Afghanistan.

There is no doubt that the War and Peace Show at Hythe in Kent was a great success at the new Folkestone racecourse site, former home of RAF Westenhanger. While the arena was a different layout to that of the previous site at Beltring, it still allowed the public to see military vehicles at close quarters and for longer periods before they disappeared behind the mock village.

Since the very early days of the show, War & Peace has always been

a magnet for tank and armoured vehicle owners, all eager to play with their toys and show off their newly restored projects. Once again this year the War & Peace Revival did not disappoint despite being fewer in number, with some owners who did not bring their armour this year still visiting the show to see what the site was like with a view to coming in force in 2014.

The various battles in the arena gave the armoured vehicles an

opportunity to roar around kicking up the dust, (and yes the new site seems to have inherited the famed War and Peace dust!) whilst supporting troops battling with each other in front of the watching hoards. There is no doubt that the new site has had a calming effect this year on the mock battles and drivers as they got used to the lie of the land and facilities, however, the public did have a chance to see a wide variety of wartime armour do battle, which included Shermans, M18



#### ABOVE...

One of several Daimler Dingo scout cars at the show this year and clearly demonstrating how dusty the arena was!

#### RIGHT...

An M16 Multiple Gun Motor Carriage, essentially an American half-track adapted to carry the quad .50 cal Maxon gun turret, tears around the arena at the War & Peace Revival.

#### BELOW...

Andrew Baker has a full set of CVR(T)s, but his undoubted favourite is this diesel powered Scimitar, recently fitted with bar armour.



Hellcat and M36 Jackson, all fighting with a variety of replica German armour, most of which were created on modified 432's. The quality of the German replica vehicles is very high and getting better each year, with the builders and owners showing replica vehicles built to a very high standard with increasing accuracy and attention to detail and should be congratulated for their hard work. By allowing the public to see these vehicles we can all gain a better understanding of the range of armour used in the Second World War.

One stand out tank that turned up for the show this year was Rick Wedlock's superb Cromwell tank is one of the finest restorations seen for many years. Seeing it with a full crew on board was probably the ultimate display in the arena and a rare opportunity to see a Cromwell in "action".

Universal Carriers of various types were found on static display in various parts of the site as well as participating in the arena displays. Fully kitted out with correct equipment and correctly dressed crews, they gave the public a

#### ABOVE...

The Czech version of the Russian BMP-1 APC is the OT-90, and can be recognised by the extended collar between the top of the hull and the turret.

#### LEFT...

One of the later CVR(T) variants, namely the Stormer, equipped with the Starstreak missile system. Note the extra wheel station due to the extended hull length.



#### ABOVE...

The Challenger 1 tank is rare in private hands, and yet this prototype example has been attending the War & Peace Show for some years now.

#### BELOW...

The M18 Hellcat isn't technically a tank but a tank destroyer, but it's one of the fastest wartime tracked vehicles you will find.

chance to see them at speed kicking up the dust in an impressive display of armoured mobility.

#### WHEELED ARMOUR

Wheeled armour in all shapes and sizes also provided some spirited displays of mobility, taking part in the various battles and moving displays held in the arena over the duration of the show. White half-tracks, Daimler armoured cars, Daimler Dingos, and several M8 Greyhounds gave the crowds plenty to photograph, although some vehicles remained in their static environments, mainly within the living history areas as



#### ABOVE...

Amongst the wartime tanks was this Sherman. Attached to the hull is a Cullin hedgerow device, used to plough through hedges rather than climbing over them and thus exposing the belly of the tank.

#### RIGHT...

The Chieftain is a popular tank in private hands, but it's not a vehicle you take on lightly – if you'll excuse the pun!





#### ABOVE...

A number of Stuart tanks were imported into the UK from Brazil some years ago, most of which have now been restored and have started to appear at shows.

#### BELOW...

The small size of the Universal Carrier has made it popular with those looking for a wartime tracked vehicle with a good turn of speed.

scenario that is rarely seen in public, and a tracked MLRS rocket launcher and Panzer IV were spotted in the Official Marshall's car park with some of the Cadman wheeled armour collection.

It was some of the smaller armoured vehicles that seemed to enjoy their time in the arena the most, and members of the Alvis CVR(T) family, including Stormer, Striker, Samson and Scorpion vehicles enjoyed the arena to the most, zooming around the arena at high speed (well for a tank) kicking up dust, demonstrating power turns and even driving around the arena in reverse - it's what Alvis owners do!

#### ABOVE...

An increasing number of Universal Carriers have turned up at the War & Peace show in recent years, this example is well restored and finished off nicely by crew in authentic dress.



part of set piece dioramas, with a very nice desert painted two tone Universal Carrier and a recently restored half-track being two of many.

Post-war armour was at the War & Peace Revival in force and Melvin Cordwell's superb Centurion tank, a long time regular at the event, and Mark Crunden's Chieftain, which were put through their paces in the arena. Roaring up the back straight with the unmistakable engine noise and clouds of dust, these two tanks seen at speed could have easily been mistaken for somewhere in central Europe during the Cold War. A Centurion ARV also provided visitors with a full recovery and towing



#### ABOVE...

It made a nice change to see a wartime American half-track finished as a medics vehicle. This one is heavily laden with supplies and kit.

#### LEFT...

The Daimler Dingo scout car was an excellent little vehicle that was well liked by those that used it.



#### **ABOVE...**

Melvin Cordwell enjoys himself in the new arena, steering the Centurion around the course with consummate ease.

#### **ABOVE RIGHT...**

Yet another Universal Carrier kicks up the dust in the arena.

#### **BELOW...**

For me this Cromwell tank dating from WW2 was the best tank at the show this year. Owned by Rick Wedlock, it was awarded the Milweb award for "Outstanding Vehicle".

The War and Peace Show awards are coveted by owners of armour, after all it is not often they are recognised for their hard work and sheer determination to get to the show. This year Rick Wedlock's Cromwell was awarded the best in show and the Milweb award for "Outstanding Vehicle" and quite rightly too. Rex Cadman and James Baxter, Chairman of IMPS, commented that the Cromwell had been restored to a very high standard. The Best Tracked Armour award went to Chris Till's M18 Hellcat with Adrian Scott's M10 Achilles followed as runner up and the Track Link British Armour Award went to Melvin Cordwell's Centurion and Mark

Crunden's Chieftain was a worthy runner up. Kevin Powles Universal Carrier was runner up in the Canadian Vehicle awards.

The Military Machines Magazine award for Best Wheeled Armour went to Philip Smith for his White Half-track with Mr Ager's very nice Daimler armoured car was a very worthy runner up.

Armour attracts all ages to the arena and this year was no exception. The arena marshals again showed

their professional skills at controlling these leviathans of war so that the public were able to see them at their best. As the count down for the 2014 show has begun we look forward to seeing newly restored vehicles and "old friends" back at War and Peace next year.

Next year's show is held between Wednesday 16th to Sunday 20th July 2014, for further details check out the website at: [www.thewarandpeacerevival.co.uk](http://www.thewarandpeacerevival.co.uk)



# A+S

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**

# Into the Archives

## RIGHT...

A pair of Mk 2/3 Daimler Ferret Scout Cars parked up at the side of the road near Sarawak in 1963. These Ferrets are fitted with the .30 cal Browning machine guns in the turret, later models were adapted to take a GPMG.



James Payne delves into photo album belonging to an ex-serviceman with the Queen's Royal Irish Hussars in the early 60s

## ABOVE...

Mk 2/3 turreted Ferret photographed during range practice at Asahan. Note the flag on the turret denoting that live firing is taking place. Unusually the commander is sat on the engine decking behind the turret and not in the turret itself.

Once again the photographs featured in this article come from a photo album that once belonged to British ex-serviceman Sergeant Errol Flynn, who served with the Queen's Royal Irish Hussars in the early 60s. The photos featured here were taken from his time in and around Kuala Lumpur in Malaysia and we've tried to include what information we have on each image, together

with a little additional information where possible. Although a number of vehicles were featured in the album, which we will include at a later date, we have concentrated on the Daimler Ferret Scout Car as they were the most numerous. As usual if you can fill in any of the gaps we would love to hear from you via the normal editorial channels.

The collection is just a small selection of images from the

album, one of an extensive military photo archive available from 'Through Their Eyes', which covers subjects from the First and Second World Wars. A huge range of CDs containing high-resolution images of military-related subjects is available, including those featured here. For further details check out the 'Through Their Eyes' website, which you can find at: [www.throughtheireyes2.co.uk](http://www.throughtheireyes2.co.uk)



#### ABOVE...

Parked next to a Bedford RL, this Ferret is preparing to leave the camp, the officer in charge can be seen completing paperwork prior to leaving. Note that the vehicle is painted in the then standard gloss Deep Bronze Green.

#### ABOVE RIGHT...

The crew of a Ferret sort through ammunition beside their vehicle. In the background is a turretless Ferret Mk 1/1.

#### RIGHT...

Convoy of Daimler Ferret Scout Cars pictured on the Kuala Lumpur road in the early 60s. All of the Ferrets appear to be the turreted Mk 2/3 and at the head of the column are a pair of Saladin armoured cars.





#### ABOVE...

This group of Ferrets was photographed at Tanjong Gelang. All the vehicles shown are of the later turreted type but retain the early single side and tail light on the front and rear wings.

#### ABOVE RIGHT...

Photographed in October 1963 a convoy of Ferrets and Land Rovers prepares to move off on the Simanggang to Kuching road.

#### RIGHT...

The crew of this Ferret take a moment to pose for the camera in between operations. The Scammell Explorer in the background has another Ferret on suspended tow.



#### BELOW...

Whoops – This Ferret has become victim to the treacherous road conditions experienced in the monsoon season. Note the escape hatch has been released from the right hand side. This is an early vehicle as witnessed by the small side light unit on the wing.



# CLASSIC LAND ROVER

ISSUE NO 7 £3.99

BUYING, DRIVING AND RESTORING ORIGINAL VEHICLES

**SERIES IIs IN ACTION**

- IIB FC Still Working
- 70% Diamond Hunting
- Driving the Fosse Way
- Caravan camping
- In the Workshop

**100% CLASSIC**

*'In my Series IIA, I looked for diamonds in Africa.'*

ONE MAN'S TRUE ADVENTURE STORY

**RARITY RESTORED**

Two-Litre 80in Prototype Resurrected

**Moving Forward**

3 Forward Controls featured

**TECH AND TOOLBOX**

SERIES III 109in Work starts on our budget Station Wagon overlander 'The Marrakech Express'

**EVENTS**

LONDON TO BRIGHTON Sun and fun on the South Coast

567/13

## For Classic Land Rover Enthusiasts

**FREE 2014 Workshop Wall Planner**

This high-quality wall planner is the perfect accompaniment to the year ahead!

**PLUS!**

**Clockwork Orange**

A Santana 109in pickup with a factory-fitted, in-line, six-cylinder diesel engine

**FARMERS GUARDIAN**

A completely original, one owner 1985 2286cc Land Rover Ninety pick-up

**AND MUCH MORE!**

Issue 7 - December issue available now from **WHSmith** and other newsagents then on sale every first Wednesday of the month\*

**JUST £3.99**

**ALTERNATIVELY, ORDER DIRECT:**

Order online with FREE P&P\* at

**www.keypublishing.com/shop**

\*Free 2nd class P&P on all UK & BFPO orders. Overseas charges apply. Postage charges vary depending on total order value.

OR


Call (UK) **01780 480404**  
(Overseas) **+44 1780 480404**  
Lines open 9.00am - 5.30pm

Also available on

Available on iTunes
 Available on the App Store
 Available on Google play
 Available on BlackBerry
 Available on PC, Mac & Windows 8
 also available for PC & MAC from **pocketmags.com**

Search: Classic Land Rover


\*App prices subject to change. UK scheduled on-sale date. Wallplanner available with printed version only.



## 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](http://www.MVPA.org)

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

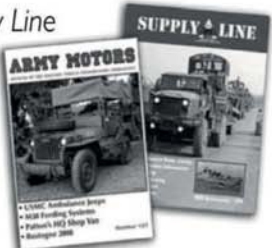
Now, support the organization that works hard to preserve your continued access to vehicles and parts. Monitoring municipal, state, and federal legislation to fight barriers to the hobby. And, assisting local MVPA affiliates facing these issues in their areas. Just part of what we do.

**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!**



# INDUSTRY UPDATE...

## Arjun Mk2 India



The Indian Army recently started user trials of the fully integrated, upgraded Arjun Mark 2 main battle tank (MBT) at the Pokharan Firing Range in Rajasthan, India. Indigenously manufactured by the Defence Research and Development Organisation's (DRDO) along with Combat Vehicle Research and Development Establishment (CVRDE), the Arjun has been undergoing development trials for the past two years to validate the technologies integrated at different intervals for the army requirements, the Times of India reports. An unnamed DRDO official was quoted by the news agency as saying that the trials will, for the first time, simultaneously test all the tank's modifications, including 16 major technologies.

An upgraded version of Arjun I MBT, the Arjun Mark 2 features an improved long-range missile-firing capability, panoramic

sight with night-vision, explosive reactive armour and an advanced air-defence gun to engage helicopters. Other modified features include an enhanced auxiliary power unit, improved gun barrels, a land navigation system, the commander's panoramic sight with eye-safe laser range finder (LRF), a digital control harness, a new final drive, track and sprocket, as well as a warning system to fire smoke grenades to confuse enemy laser guidance.

DRDO is expecting the army to place an order for around 500 Arjun Mark 2s to make the tank cost-effective, production viable and continuous in terms of supply. A DRDO official said the army had asked for an advanced Arjun tank fitted with specified features and capabilities, but the order has to be increased to at least 500 units to make it viable for both the industry and the user.

(Primary source: *army-technology.com*)

## Storm GAARV US



HDT Global's (HDT) Expeditionary Systems Group (ESG) has started the production of the HDT Storm search-and-rescue tactical vehicle (SRTV) under the Guardian Angel Air-Deployable Rescue Vehicle (GAARV) contract. The GAARV contract was awarded by the US Air Force Life Cycle Management Center (AFLCMC) in January 2013.

Manufactured in collaboration with the US Special Operations Forces, the HDT Storm is an ultra-lightweight, air-deployable tactical vehicle designed to assist the Guardian Angels rescue teams during search and recovery of personnel and equipment in austere geographic locations. Air-transportable by the M/HC-139P/N/J, C-130/C-130J Hercules, KC-130J and C-17 fixed-wing aircraft, and CH-47 Chinook and CH-53 helicopters, the vehicle also offers increased payload, speed, range and durability that in turn will enhance the survivability of both isolated personnel and rescue teams. Capable of driving on and driving off these aircraft without shoring, the vehicle can also be deployed through low velocity aerial delivery or joint precision airdrop system (JPADS) methods to help improve mission capabilities.

(Primary source: *army-technology.com*)

## AMZ Kutno Topola-S

Under a contract valued at \$14.8 million Poland's armed forces have purchased 44 Topola-S explosive ordnance disposal (EOD) vehicles from AMZ Kutno. The first 15 vehicles will be delivered this year, with the remaining 29 to follow in 2014.

The AMZ Kutno Topola-S is based on the chassis and running gear of IVECO's Daily (4x4) and is equipped with a Jakusz



explosion containment vessel, this rated to withstand a blast of up to 3.5 kg of TNT equivalent. Poland's 39 permanent sapper patrols are still regularly clearing unexploded ordnance from the both World Wars... (Primary source: *Jane's*)

## M113BR Brazil

The Brazilian Army is understood to have recently taken delivery of the first production vehicle of the 150 M113A2 Mk1 armoured personnel carriers it has ordered. For this effort vehicles in the M113B configuration are being upgraded to the M113A2



Mk1 standard, locally designated M113BR, at the Army's regional maintenance workshop in Curitiba as part of a US Foreign Military Sale (FMS) worth \$47.6m that was negotiated in 2010 with the US government, which awarded BAE Systems Land and Armaments a contract for the project in 2011. In 2012 the Brazilian Army's first M113BR prototype underwent trials at the service's evaluation centre. (Primary source: *Jane's*)

## EE-9 Cascavel Suriname

Suriname is to receive its two EE-9 Cascavel armoured reconnaissance vehicles that are being refurbished in Brazil by late 2013. The two vehicles, which are armed with a 90 mm gun, are being refurbished under the supervision of the Brazilian Army's Logistics Command at the regional maintenance workshop in Rio de Janeiro. The work was committed to by Brazil's Minister of Defence, Celso Amorim,



to his Surinamese counterpart, Lamure Latour, while visiting Suriname in September 2012.

Together with two refurbished EE-11 Urutu armoured personnel carriers (recommissioned on 21 June), the two EE-9 Cascavel vehicles were shipped to Brazil in December 2012 to undergo the refurbishment. Maintenance training for Surinamese personnel is also scheduled

and total cost for the renewal work on the Urutus and Cascavels is likely to be about \$950,000.

All four vehicles were produced by the now-defunct Brazilian company Engenheiros Especializados (Engesa).

It is understood that the project could be extended in the future to other vehicles that are in service with Suriname.

(Primary source: *Jane's*)

## MSVS Canada

The Canadian government has issued a request for proposals (RFP) for the much-delayed medium-support vehicle system (MSVS) standard military pattern (SMP) programme, this aiming to replace and upgrade the national armed force's existing medium-sized logistics truck fleet.

Issued by the Public Works and Government Services Canada following release of a letter of interest and one-to-one meetings with industry representatives in January, the RFP seeks acquisition of a new fleet of up to 1,500 medium-sized trucks and associated logistics solutions. Specifically, the SMP vehicle requirement covers procurement of five vehicle variants and associated equipment, as well as in-service support throughout their service life. Serving in combat since the 1980s, Canada's existing Bombardier-built medium logistics vehicle wheeled (MLVW) fleet has nearly completed their operational life.

The vehicle testing and other government evaluations are scheduled to be carried out in 2014, followed by the contract award in 2015. Deliveries are set to commence in

2017, with planned completion by 2018.

As in all government contracts, the industrial and regional benefits (IRB) policy will apply to the acquisition, ensuring that the winning company creates economic benefits in Canada equal to 100% of the



contract value, including a minimum of 20% direct IRB for acquisition and 35% direct IRB for the in-service support contract.

Released by Public Works and Government Services Canada on behalf of the Department of National Defence (DND), the RFP is scheduled to close on 17 December 2013.

(Primary source: *army-technology.com*)

## VN4 Venezuela

Sources in China have disclosed that China North Industries Corporation (Norinco) has secured an export order for its VN4 (4x4) light armoured vehicle, this being the first known export of the type. Initial deliveries to the Venezuelan National Guard are understood to be under way.



Numbers of VN4 involved in the order are unclear, but it has been suggested that the complete Venezuelan order is for 141 Norinco vehicles, this total including WTC-1 water cannon and ABV-1 riot control vehicles in addition to the VN4.

The VN4 is described by Norinco as a multirole light armoured vehicle that has a combat weight of around 9,000 kg, and that can carry up to ten including a crew of two in an air-conditioned environment. The compact size of the VN4 makes it ideal for internal security type operations, and



for this role it is normally fitted with a roof-mounted protected weapon station armed with a 12.7 mm machine gun and banks of grenade launchers.

Motive power is provided by a six-cylinder diesel engine developing 232 hp, which gives a maximum road speed of up to 115 km/h and a cruising range of up to 700 km. The VN4 is fitted with fully independent coil spring suspension and has dimensions of 5.4 x 2.4 x 2.05 m.

(Primary source: *Jane's*)



## Serbian Army

The Serbian Ministry of Defence (MoD) announced recently that the Serbian Army had received a donation of 20 medical utility vehicles from China, with 12 of these to be deployed to support brigades around Serbia, and 8 of which will be utilised by the Serbian Military Medical Academy; the Nis Military Hospital; and the Novi Sad and Belgrade Military Medical Institutions Center. The value of the donation was estimated by the Serbian MoD at \$2 million.

Official statements say the ambulances are fitted with engines manufactured by Italy's Fiat, and have been delivered together with spare parts. They are to be serviced in Serbia.

It is almost certain the vehicles in question are based on the Nanjing NJ2046



High Mobility Vehicle. The NJ2046 (and NJ2045) are essentially the IVECO Daily-based 40.10, which is licence built in China by Nanjing IVECO Motor Co (Naveco). Naveco is a joint venture between the Nanjing Automobile Corporation and IVECO that was founded in 1996.

The NJ2045 and NJ2046 are both in service with China's armed forces in numbers, the NJ2045 being the most numerous. The NJ2045 is being deployed for personnel carrier and ambulance roles, while NJ2046 has been deployed for troop/paratrooper carrier, border security, special operations, and weapon carrier roles.

Serbia and China have fairly close military relations and what was Serbia and Montenegro signed a defence co-operation with China in September 2005.

(Primary source: Jane's)



## ProForce Defence Nigeria

Nigeria's ProForce Defence is currently developing the Pf1 light armoured vehicle (LAV) aimed at the local military and police markets. Bimbola Owojori, the head of business development at ProForce, told Jane's that the Pf1 prototype will be launched soon.

According to information provided by ProForce, the LAV features an all-welded steel monocoque hull that in its basic form provides ballistic protection to STANAG 4569 Level 2 but can be upgraded to Level 4. Mine protection is to STANAG 4569 Level 2a but can be upgraded to Level 2b.

The baseline Pf1 has a typical combat weight of 7,850 kg and can carry eight dismounts and a crew of two.

(Primary source: Jane's)



## TEXTRON TAPV

Textron Marine & Land Systems (TM&LS) announced recently that the company had delivered the first Tactical Armoured Patrol Vehicle (TAPV) pre-production vehicle (PPV) to the US Army's Aberdeen Test Centre in Maryland for qualification testing, which is expected to take five months.

A second PPV was sent to the Rheinmetall Canada facility and this vehicle has completed three sets of tests. The third and fourth PPVs were also at the Rheinmetall facility for integration activities.

Two additional PPVs were subsequently completed and at that point in time, five of the six PPVs were sent to Canadian Forces Base Valcartier in Quebec for training. Following this activity, the pre-production TAPVs will undertake reliability, availability, maintainability and durability testing for eight months. Full-rate production is planned to begin in January 2014 and the production phase of the acquisition contract is expected to span July 2014 through to March 2016.

Textron Systems Canada was selected in June 2012 for the TAPV programme to deliver 500 vehicles. The TAPV contract is worth C\$603.4million including options for a further 100 vehicles. An additional five-year in-service support contract is worth C\$105.4m.

When the vehicles enter service, Rheinmetall will provide in-service support for the TAPV fleet. This will start with Initial Operational Capability when the first 47 vehicles are delivered, planned for 2014 and is expected to end in 2021, five years after the last vehicle is delivered.



## BTR-3 Thailand

Ukrainian Export has been awarded a contract of unspecified value for the delivery of an additional 21 BTR-3E1 armoured personnel carriers (APCs) to the Royal Thai Army. The contract covers the supply of 15 BTR-3E1 and six BTR-3RK vehicles.

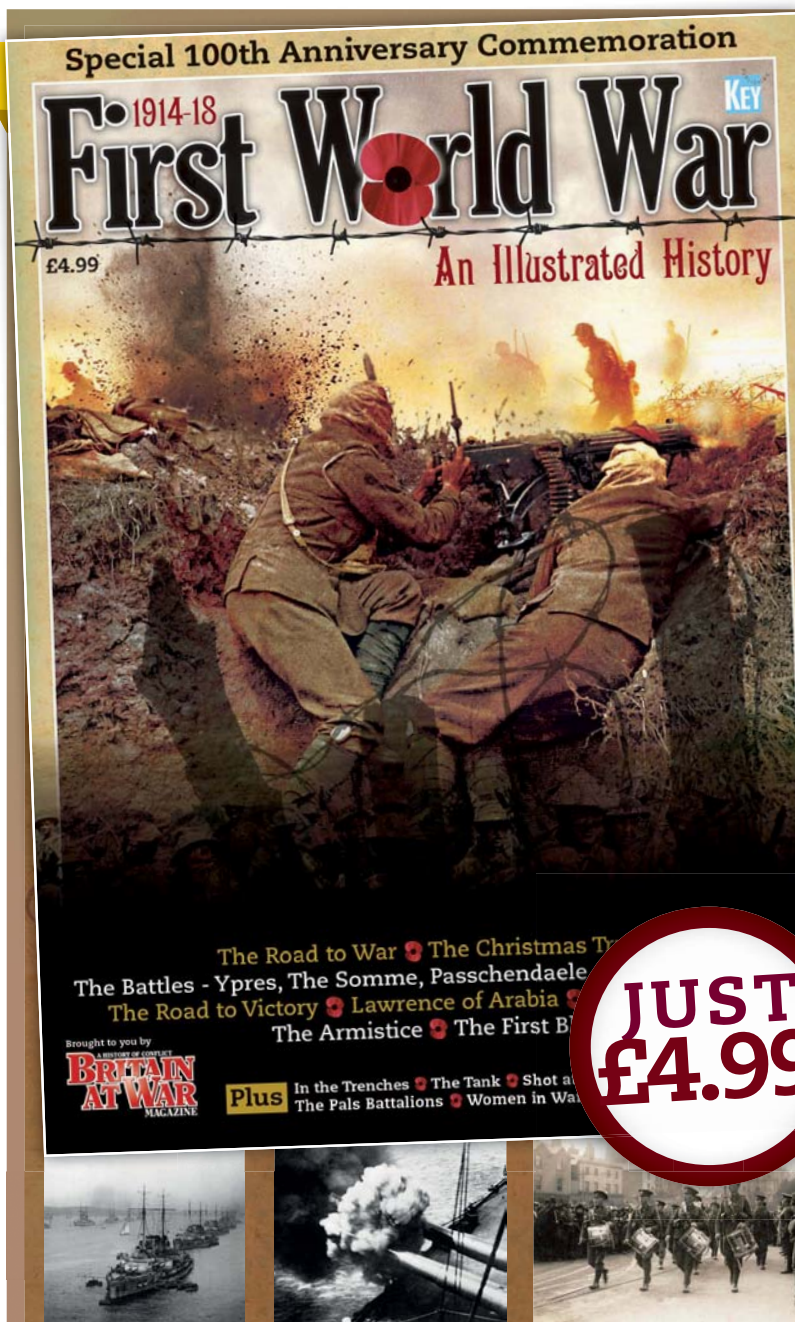
To date, the Ukraine has reportedly supplied 233 BTR-3E1s to Thailand as part of a combined \$270m contract awarded in 2006 and 2011.

The contract was executed by Kharkiv Morozov Machine Building Design Bureau and Zhytomyr mechanical repair plants, which are part of the Ukrainian state run manufacturer, Ukroboronprom. Meanwhile, sources suggest Ukroboronprom is currently exploring the potential of establishing a service centre in Thailand for the maintenance of Ukrainian-built military equipment. Additionally, the company and the Thai Army are also understood to be discussing the possibility of joint assembly of BTR-3E1s in Thailand. (Primary source: Battlespace)



# 100<sup>TH</sup> ANNIVERSARY COMMEMORATION

NEW!



## NEW! **BRITAIN AT WAR** SPECIAL

The First World War was the most destructive conflict the world had known with scarcely a family throughout the UK and Commonwealth being untouched by the terrible slaughter of such battles as the Somme, Ypres and Gallipoli.

In this 132-page special from the team behind Britain at War magazine, the key events that shaped the war are brought sharply into focus. The war in the air, the war at sea; the enormous effort by the countries of the Empire are all discussed, as are the major battles on the Western Front and in the Middle East.

### FEATURES INCLUDE

#### THE BATTLE OF THE SOMME

Unparalleled slaughter for limited gain: or the beginning of the end for the Germans?

#### WAR IN THE AIR

From small unarmed reconnaissance, to fast fighters and heavy bombers

#### FIRST BLITZ

Terror from the skies: the British people on the front line

#### MUCK AND BULLETS

What life was really like in the trenches

#### THE TANK

The most significant technical development on the battlefield

And much more!

JUST  
£4.99\*

AVAILABLE NOW FROM **WHSmith** AND ALL OTHER LEADING NEWSAGENTS

**ORDER DIRECT!**

# JUST £4.99 + FREE P&P\*

\*Free 2nd class P&P on all UK & BFPO orders. Overseas charges apply.

**Free P&P\*** when you order online at  
[www.keypublishing.com/shop](http://www.keypublishing.com/shop)

OR

Call UK: 01780 480404  
Overseas: +44 1780 480404

Monday to Friday 9am-5:30pm

**SUBSCRIBERS CALL FOR YOUR £1.00 DISCOUNT! SUBSCRIBERS CALL FOR YOUR**

# MISSION BRIEFING

## DATES FOR YOUR DIARY

### NOVEMBER 2013

#### Sunday 17 November 2013:

**Military Vehicles Day:** Over 80 vehicles are expected for our annual Military Vehicle Day. As well as the spectacular displays in the Paddock and around the site, there will be the chance to see some of these machines put through their paces as they tackle the off-road circuit at Mercedes-Benz World. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN. Tel: 01932 857381  
[www.brooklandsmuseum.com](http://www.brooklandsmuseum.com)

#### Sunday 17 November 2013:

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

#### Sunday 24 November 2013:

**Aircraft Enthusiast Fair and Model Show:** held at the Museum of Army Flying, Middle Wallop. The show opens between 10.00am and 4.00pm, the normal museum admission fee of £7.50 is reduced to £5 on the day and covers both the museum and the fair. For further information please contact the organiser at: [mark@roberts15863.fsnet.co.uk](mailto:mark@roberts15863.fsnet.co.uk) or Tel: 01264 334779

### DECEMBER 2013

#### Sunday 15 December 2013:

**Bromsgrove, Militaria, Medal & Arms Collectors Fair:** held at the Spadesbourne Suite, The Council House, Burcot Lane, Bromsgrove, Worcs, B60 1AA. For further information and dealers booking forms contact James Brown at: Tel: 07980 608211  
[fairs@RZMilitaria.com](mailto:fairs@RZMilitaria.com)  
[www.RZMilitaria.com](http://www.RZMilitaria.com)

### JANUARY 2014

#### Sunday 5th January 2014:

**Aviation, Airline & Military Collectors Fair:** Doors open at 10.30am, featuring Aviation & Military Collectables, Book and Model Collectors, Airline Collectables, Uniform, Plastic kits, held at Croydon Airport Hotel, A.23, Purley Way, Croydon Surrey, CR9 4LT. Free car parking. For further details contact Acebell Aviation on: Tel: 01737 822200 or Tel: 07860762277  
[Acebellaviation@aol.com](mailto:Acebellaviation@aol.com)

### APRIL 2014

#### Saturday 5 April 2014:

**Tiger Day:** held at the Tank Museum, Bovington, Dorset, BH20 6JG. A rare opportunity to see the museum's Tiger 131 perform in the arena. For more details see the website at: [www.tankmuseum.org](http://www.tankmuseum.org)



#### Saturday 12 to Monday

**21 April 2014: Sandstone Estates Easter Festival:** held at the Sandstone Heritage Trust, Eastern Free State, South Africa. Annual open festival featuring the many military vehicles, agricultural equipment, vintage cars and narrow gauge steam railway owned by the Sandstone Heritage Trust. The Sandstone Heritage Trust works closely with South Africa's Armour Museum and boasts an impressive and varied collection of military equipment, from a Sherman tank to modern day South African Defence Force armoured vehicles. (For further details of the show see the report on this year's show in this issue) For more information on the show check out the website at: [www.sandstone-estates.com](http://www.sandstone-estates.com)

#### Sunday 20 April 2014:

**Aviation, Airline, Military & Collectors Fair:** held at the K2 Centre, Crawley, West Sussex. Doors open at 10.30am. Featuring aviation and military collectables, plastic kits etc. For further detail contact: [tom@singfield.freereserve.co.uk](mailto:tom@singfield.freereserve.co.uk)

#### Sunday 27 April 2014:

**Aviation, Airline, Military & Collectors Fair:** held at the K2 Centre, Crawley, West Sussex. Doors open at 10.30am. Featuring aviation and military collectables, plastic kits etc. For further detail contact: [tom@singfield.freereserve.co.uk](mailto:tom@singfield.freereserve.co.uk)

### MAY 2014

#### Friday 9 Saturday 10 Sunday

**11 May 2014: Nottingham County Show:** Held at the Newark County Showground, Lincoln Road, NG24 2NY, just minutes off the A1. The show theme is the 70th Anniversary of D-Day, featuring military vehicles, re-enactors, static and arena events, living history. Plenty to see and do for all the family. For further details and booking forms contact Eric Harris on: Mob: 07904 388890

#### Saturday 17 May 2014: 1940's

**Relived:** Discover period civilian and military vehicles on parade and various groups of re-enactors, representing from the Home to the Eastern fronts. Live 1940s music and dance, vintage trade stalls and more. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN. Tel: 01932 857381  
[www.brooklandsmuseum.com/events](http://www.brooklandsmuseum.com/events)





**Saturday 24 Sunday 25  
Monday 26 May 2014:**

**Chipping Steam Fair:** Three fun-packed days for all the family! Held at Green Lane Showground, Chipping, Lancashire, PR3 2TQ. For more details call: Tel: 01995 61866 or Tel: 01995 61505

## JUNE 2014

**Sunday 15 June 2014:**

**MAFVA Nationals:** held at IWM Duxford, as part of the annual military vehicle show. Further details as and when they become available.

**Saturday 28 Sunday 29 June 2014: Tankfest 2014:** held at the Tank Museum, Bovington, Dorset, BH20 6JG.

Experience the world's best display of historic moving armour. Lots to see and do for all the family with trade stands and living history encampments plus the world famous Tank Museum itself, home to finest collection of tanks in the world. For more details see the website:

[www.tankmuseum.org](http://www.tankmuseum.org)



## JULY 2014

**Saturday 5 Sunday 6 July 2014:**

**Dig for Victory Show:** Held at the new venue of the North Somerset Show Ground. It is a 1940's themed family event organised by the Shopland Collection and the Western Branch of the Invicta Military Preservation Society, with the support of the North Somerset Agricultural Society, Blitz Buddies and Bristol based Dance Blast. For further information contact the Event Organiser James Shopland on: Tel: 01275 873107

[james@shoplandsawmills.co.uk](mailto:james@shoplandsawmills.co.uk)

**Wednesday 16 to Sunday 20 July 2014: War & Peace Revival 2014:** held at 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 the new venue. For further details or to book in for the show call: Tel: 01304 813337 or Tel: 01304 813945

[www.thewarandpeacerevival.co.uk](http://www.thewarandpeacerevival.co.uk)

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

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

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



## NOVEMBER 2014

**Sunday 15 November 2014:**

**Military Vehicles Day:** held at the Brooklands Museum. Over 80 vehicles are expected for our annual Military Vehicle Day. As well as the spectacular displays in the Paddock and around the

site, there will be the chance to see some of these machines put through their paces as they tackle the off-road circuit at Mercedes-Benz World. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN.

Tel: 01932 857381

[www.brooklandsmuseum.com](http://www.brooklandsmuseum.com)



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 SPARES

## GreenMachineSurplus

### Suppliers of

- Vehicle spares ● Camping equipment
- Vehicle Manuals ● Vehicle Accessories ● Radio spares

Tel: 01782 729112 Email: [enquiries@greenmachinesurplus.com](mailto:enquiries@greenmachinesurplus.com)

Visit our online shop

[www.greenmachinesurplus.com](http://www.greenmachinesurplus.com)

VEHICLE MAINTENANCE



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](http://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 Viar 12 volt compressors.



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  
Email: [ringmotors@yahoo.co.uk](mailto:ringmotors@yahoo.co.uk)

Fareham, Hampshire

<http://www.facebook.com/militaryvehiclerepairs>

To advertise in  
**MILITARY  
MACHINES  
QUARTER  
MASTERS STORES**

please contact

Jill Lunn

01780 755131

email: [jill.lunn@keypublishing.com](mailto:jill.lunn@keypublishing.com)

[keypublishing.com](http://keypublishing.com)

VEHICLE PARTS

## DROP ZONE

THE SOUTH'S 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](mailto:info@dropzonemilitary.com)

[www.dropzonemilitary.com](http://www.dropzonemilitary.com)

RADIO CONTROLLED TANKS



THE BEST RUNNING RADIO CONTROL TANKS  
IN THE WORLD

[WWW.MARK-1-TANK.CO.UK](http://WWW.MARK-1-TANK.CO.UK)

TEL NO: 01962 866520

VEHICLE PARTS

## CLASSIC SPARES

Brake and clutch hydraulic spares for post 1935 classic and vintage commercials, buses and coaches. Kits for master cylinders, wheel cylinders and slave cylinders. New and recon cylinders.

Brake hoses from stock or made to pattern.  
Cylinder resleeving service and one off manufacture available.

Contact: Ian Wonnacott, Classic Spares,  
The Forge, Fore Street, Kenton, Devon EX6 8LF.

Phone/Fax: 01626 891645 email: [ian@classicparts.co.uk](mailto:ian@classicparts.co.uk)  
[www.classic-parts.co.uk](http://www.classic-parts.co.uk)

**key  
SHOP**

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



[www.keypublishing.com/shop](http://www.keypublishing.com/shop)

**NEW!**

# BOMBER COMMAND'S UNSUNG WARRIOR

A TRIBUTE TO BOMBER COMMAND'S UNSUNG WARRIOR

## WELLINGTON

UNITS • VARIANTS • SURVIVORS • ODDITIES • WEAPONS • COLOURS • CODES

*FlyPast* SPECIAL



- SUB-HUNTERS AND MINESWEEPERS
- THOUSAND BOMBER SWANS
- LOCH NESS WELLINGTON
- AIR RAID EYE WITNESS

**JUST  
£4.99\***

## NEW! *FlyPast* SPECIAL

Until the advent of the 'heavies' - the Stirling, Halifax and Lancaster - the Wellington bore the brunt of Bomber Command's onslaught over occupied Europe. Built using the revolutionary geodetic construction developed by Barnes Wallis, the Wellington developed a reputation for being able to take a lot of punishment and still bring crews home.

Enthusiasts the world over have a great respect for the Wellington this 100-page special magazine provides a much sought-after tribute to an incredible warplane.

### FEATURES INCLUDE

Barnes Wallis and the birth of the Wellington

Detailed directories of RAF and Commonwealth front-line squadrons and support units from the UK to the Far East

Breakdown of each and every variant and the incredible roles the Wellington carried out

Bomber Command's stalwart, from early daylight to the 'Thousand Bomber' raids

Colour schemes, markings and squadron heraldry

Postwar usage and the survivors - Hendon's Dambusters camera-ship and the 'Loch Ness' Wellington

Swansong, the 'Super Wellington', the Vickers Warwick

**AND MUCH MORE!**



AVAILABLE NOW FROM **WHSmith** AND ALL OTHER LEADING NEWSAGENTS

ALTERNATIVELY, ORDER DIRECT

**JUST £4.99 FREE P&P\***

\*Free 2nd class P&P on all UK & BFPO orders. Overseas charges apply.

Free P&P\* when you order online at  
[www.keypublishing.com/shop](http://www.keypublishing.com/shop)

**OR**

Call UK: 01780 480404  
Overseas: +44 1780 480404

Monday to Friday 9am-5:30pm

**SUBSCRIBERS CALL FOR YOUR £1.00 DISCOUNT! SUBSCRIBERS CALL FOR YOUR £1.00 DISCOUNT!**

# Next Month...

On Sale 5th December 2013

## BEDFORD'S FINEST

We look at the  
British Bedford  
MW truck of  
World War Two

## LAST OF THE CHAFFEES

Santiago Rivas looks  
at the M24 Chaffees  
in Uruguayan Army  
service



Content may be subject to change



## PANZERMUSEUM MUNSTER

Carl Schulze reveals some of the treasures to be found at Munster

## WELLAND 2013

Show report looking at the military vehicles attending this popular event



## DUTCH ENGINEERS MUSEUM

Tim Royall visits the museum of the Dutch Corps of Engineers



## EMERGENCY TOUR

Colin Stone looks at Irish Army armoured cars serving in the Congo



## WARTIME IN THE VALE

Round up of all the action at this year's show held near Evesham

**14TH - 17TH FEBRUARY 2014**

# ONSITE & ONLINE AUCTION SALE

**«THE SPAIN AT WAR» MUSEUM COLLECTIONS - BILBAO (SPAIN)**

**AN EXCEPTIONAL COLLECTION OF AROUND 60 MILITARY VEHICLES AND  
20 GUNS, FROM BOTH THE SPANISH CIVIL WAR AND WORLD WAR II  
IN MINT CONDITION**



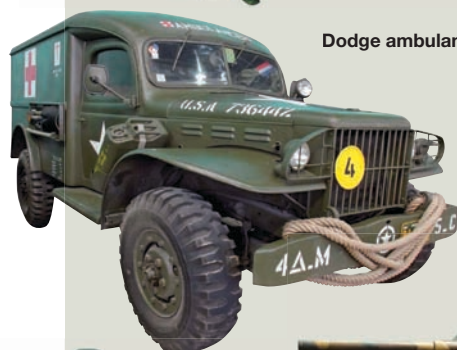
Italian Pavesi artillery truck



Schwimmwagen



Zundapp KS 750 side-car



Dodge ambulance



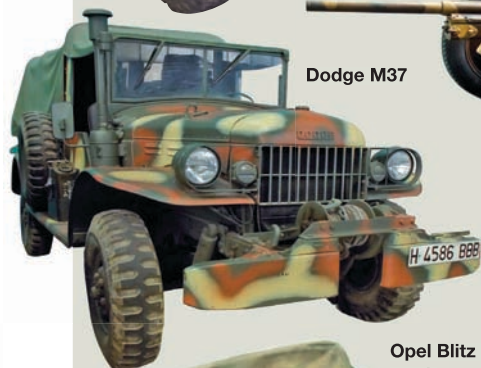
Kubelwagen



Italian Bianchi 500  
motobike



37 PAK gun



Dodge M37



2 cm Flak 30  
anti-aircraft gun



Harvey-Davidson 750 WLA



Opel Blitz 3 T  
truck



Dodge command-car

Jeep CJ5 Navy



Kettenkrad

**SALE CONSULTANT - DIDIER COSTE: +33.6.60.64.60.85**

Paper and online catalogue available from november 2013  
Caen Auctions 13, route Trouville 14000 Caen - Tel.: +33(0)231.860.813  
**Sales information : Xavier Aiolfi +33 6.07.43.38.05 ou [xavieraiolfi@yahoo.fr](mailto:xavieraiolfi@yahoo.fr)**  
**Aiolfi & Partners - <http://interenchères.com/14001> - [www.aiolfi.com](http://www.aiolfi.com)**