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Volume 1 Issue 1

G3 DEFENCE

LOOKING AT THE NEEDS OF THE FRONTLINE

UORS THE IMPACT ON UK INDUSTRY

A look at the impact that UORs are having on the UK defence industry equipment design and development capability

TACTICAL SUPPORT VEHICLES

An overview of the Tactical Support Vehicle programme a recent £700 million UOR

IS IT A BIRD, IS IT A PLANE?

Using UAV technology on operations is proving to be a vital and necessary piece of equipment for commanders

A 'HEADS UP' ON PROTECTION

The rise of the protected weapon station

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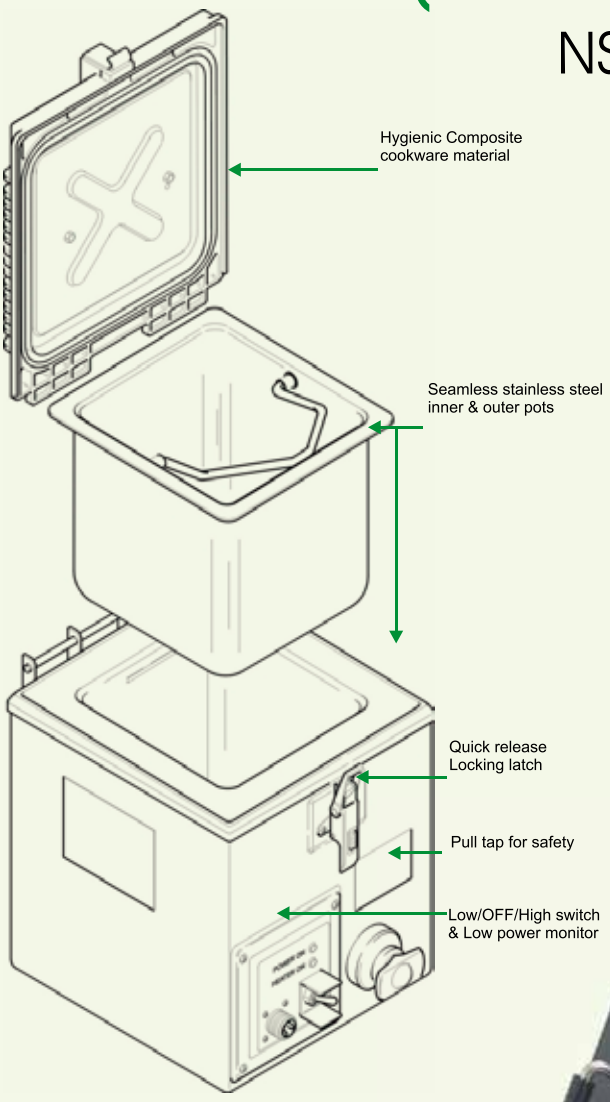

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Foreword

Royal Marines and soldiers from the British Army who had trained in Norway in the 1980s were full of praise for the "Norgy" shirt. This comfortable and practical garment issued to the Norwegian Army had a zippered neck and was made from a soft and warm material that wicked away moisture, so keeping the wearer dry and warm in the bitter Arctic winters. Individuals purchased them from the Norwegian Army and there was pressure for the British Army to adopt the shirt. "Oh no" said an unnamed MoD bureaucrat "this garment cannot be issued to the British Army unless it had been trialled" - this ignored the fact that the shirt had not only been tried and tested by the Norwegian Army but also by very large numbers of Royal Marines and British soldiers.

The situation has changed since those days and UORs see new weapons and equipment entering service in Afghanistan and other operational theatres with commendable speed. Moreover there is a closer liaison between the MoD and British and foreign manufacturers of weapons and equipment in this increasingly globalised defence industry.

The aim of G3 Defence is to be a champion for the defence industry that is supporting young men and women currently engaged in the toughest job in the world, by sustaining and enhancing the link between designer, manufacturer and the end user – the sailor, soldier and airman, either in training or on operations. For the servicemen and women in the field it will provide an impartial source of information about new and upcoming equipment as well as some older equipment that is being upgraded. As a tri-service publication it will also provide them with a valuable "big picture". The articles contributed will come from expert writers with a wealth of experience of industry and also operations.

In closing this foreword we are reminded of the consequences of providing poor equipment as fighting intensifies in Afghanistan. Upon reflection the government has declared that "only the best will do". G3 aims to be a provider of the best - the best information.

Will Fowler

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UORs the impact on UK industry

"I want it and I want it now" - it sounds like the demands of a spoiled child, but in the context of Afghanistan and other operational theatres it reflects the reality of a rapidly changing threat that must be countered if soldiers are to stay alive and take the war to the Taliban.

Bulldog – Photo: BAE Systems

The British Ministry of Defence have long term equipment procurement programmes that include major warships, aircraft and combat vehicles. Managed on a continuous basis these are reviewed at least every two years and exist to deliver the core capabilities for the armed forces. However when a roadside IED rips apart a vehicle in Helmand Province, force protection measures take on a real urgency. It is here that Urgent Operational Requirements (UORs) play an important part. Using additional money from the Treasury, the MoD can purchase, often off the shelf, vehicles and equipment for troops in the field. Since operations began in Iraq and Afghanistan the ministry has approved over £3.6 billion of funding for UORs and about 85 per cent of which has been spent on force protection.

UORs fall into four categories

1) Those that hasten existing programmes

2) Those that introduce new capabilities previously unprogrammed

3) Those that top up holdings of items already on the MoD's inventory

4) Those that modified existing equipment or infrastructures

Some of these UORs have been met by buying existing weapons systems or equipment from manufacturers in Europe or the United States and there is increased concern about the impact this is having on the UK defence industry equipment design and development capability.

National Audit Office identified that 57% of equipment reaches units within the prescribed time actually laid down by the MoD

At the time of Operation Corporate the Falklands Campaign in 1982 and Operation Gramby in 1990 the first Gulf War, British industry demonstrated that it

could supply weapons, spares and even modifications to equipment at very short notice. Spares were sometimes couriered to RAF bases in the UK where startled soldiers en route for the Gulf were handed a package and told to give it to the company representative who would meet them at their destination.

The argument for buying Commercial Off The Shelf (COTS) products from overseas is that they can be deployed quickly, however a report in May 2009 by the National Audit Office identified that 57% of equipment reaches units within the prescribed time actually laid down by the MoD. Even when the equipment is delivered there can be problems – helmet mounted night vision goggles bought from the United States were not supplied with the brackets to allow soldiers to fit it to their helmets – consequently soldiers on patrol at night had to sling it around their necks on para cord.

Currently among the UORs derived from overseas suppliers is the US MQ-9 Reaper Unmanned Aerial Vehicle that entered service with British forces in Afghanistan in November 2007. The UAV manufactured by General Atomics Aeronautical Systems Inc entered service with the RAF 15 months after the requirement was received.

The MoD has approved further spending of over a quarter of a billion pounds on nearly 250 Mastiff and over 150 Ridgback wheeled armoured vehicles designed by Technical Solutions of South Africa and built in the United States by Force Protection Industries. The only British input to these vehicles are the electronics and extra armour Spending around £100 million the MoD states that it aims to deliver improvements to armoured vehicles like Bulldog, Warrior, Challenger tanks and CVR(T) that are currently in service including armour upgrades where required;

There are British supplied vehicle UORs like the “M-WMIK” Jackal vehicles produced by the Devon based firm of Supacat Ltd are being procured, The vehicles can be fitted with a range of weapons, such as a 12.7 mm HMG, 7.62mm GPMG and 40mm Automatic Grenade Launcher so combining fire-power with exceptional agility, making it ideally suited to operations in Afghanistan.

However over £50 million worth of UORs for infantry equipment have been approved, including the Belgian FN Minimi 5.56mm light machine gun and the proven Browning 12.72mm heavy machine gun, the German Heckler and Koch 40mm grenade machine gun, underslung grenade launchers, mortar systems, a wider issue of night vision goggles and light weight thermal imagers.

The UOR vehicle purchase alone from the United States had cost the British government at least £260 million

The highly successful UK firm of Accuracy International of Portsmouth have supplied the 8.59 mm L115A3 Long Range Sniper rifle as part of the Sniper Systems Improvement Programme has an effective range of over 1100 metres firing .388 Lapua Magnum ammunition. The rifle is fitted with the Schmidt & Bender 3-12 x 50 PM II telescopic sight making it a formidable weapon in trained hands.

The UK MoD has shopped abroad for the the Light Anti-Structures Missile (LASM) the name of the L72A9 in UK service which

is a United States derived weapon. The LASM contains about 1kg of an enhanced blast explosive, whereas the LAW contains about a third of a kilo.

The defining feature of current operations is the unexpected – new tactics and weapons employed by enemy forces and political and tribal agreements and treaties that make "friends" of old enemies. While the latter changes can be hard to predict equipment and systems bought through UORs go some way to countering the former. However by their policy of buying abroad the MoD and Government may be undermining the British defence industry that is not only a valuable exporter but has demonstrated its flexibility and willingness to deliver the goods. Once these skills are lost with redundancies, factory closures and the design expertise goes overseas the Government and MoD will find themselves increasingly vulnerable. In a paper delivered to the Royal United Services Institute Chris Maughan highlighted the problem stating that the UOR vehicle purchase alone from the United States had cost the British government at least £260 million. However if the United States buys equipment from an overseas supplier, part of the deal is that a production line must be established in the US – so guaranteeing employment in these key industries.

UORs placed abroad may seem like a "quick fix" but the British government must be wary of the damage it is doing to its domestic defence industry.

Will Fowler Editor G3 DEFENCE

Minimi

Mastiff – Photo: Crown Copyright MoD

Jackal - Photo: Supacat

DVD2009

MINISTRY OF DEFENCE

de&s

Millbrook • Bedfordshire • 24.06.09 • 25.06.09

What is DVD?

DVD 2009 is organised by Defence Equipment & Support (DE&S) providing an opportunity for industry and the defence community to discuss, learn about and experience equipment and support, including vehicles, battlefield infrastructure and related support services.

Who should attend?

DVD is attended by authorised visitors from the defence acquisition and user community relating to the teams represented.

How to register

To book your place you must register in advance by visiting the website below.

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A coherent solution for OUVS and LPPV

Iveco's solution to both requirements shows the practical application of protected mobility

As the conflict in Afghanistan reaches new levels of sophistication and violence, operations are providing military planners and vehicle designers with new challenges. In Iraq, a large proportion of operations were undertaken in and around built up areas which were relatively well served by roads. Whilst these provided good communications, they also channelled movement, increasing vulnerability to roadside IED attack and so necessitating the provision of heavier platforms capable of providing on-road protected mobility.

Operations in Afghanistan are undertaken in a far less well developed country, with smaller roads, many villages and much mountainous terrain. In such an environment, the heavier MRAP type vehicles have much reduced utility because their terrain accessibility is so low. To operate effectively in such conditions, there is a pressing requirement for lighter vehicles which provide both adequate protection and a far higher level of mobility. The UK MoD has identified this requirement in the shape of the Operational Utility Vehicle System (OUVS) and Light Protected Patrol Vehicle (LPPV) programmes, both of which will shortly enter competitive evaluation. There is, however, a danger that these two programmes could result in the procurement of two further vehicle types in addition to the many already procured in recent years. If a compliant, common, cost effective solution which is already in service can be identified, then this would be a logical choice to meet the requirement.

Iveco Defence Vehicles, which already provides the base vehicle for the Panther system, is particularly well placed to compete for both OUVS and LPPV, adapting its well proven Light Multirole Vehicle (LMV) design to meet the very different demands which these new requirements place upon it. Of the 2500 LMVs sold to date, the great majority have been in variations of a standard 3.2 metre wheelbase configuration with a 4/5 man crew cell located in the centre. The variants for both OUVS and LPPV will be based on the longer 3.5 metre wheelbase, currently in service with both the Spanish and Italian armed forces.

For OUVS, the cabin has been redesigned to take account of the need to accommodate users wearing body armour and is substantially more spacious than that seen in the Panther. The vehicle maintains Panther's excellent levels of protection and mobility but provides significantly greater carrying capacity. This is achieved both as a result of a concerted campaign to reduce the vehicle's kerb weight and by uplifting the vehicle's GVW to 7.5 tonnes.

In its LPPV configuration, it is planned that the base chassis cab will be fitted with a purpose built body capable of accommodating 4 fully equipped personnel in the rear, plus the driver and commander. Design work for this programme is progressing quickly, with a view to meeting the user's demanding UOR timeframes, and incorporates the lessons learned from three years of LMV deployment to operational theatres.

Alone of the competing vehicle designs, LMV offers the UK MoD the opportunity for increased coherence within its vehicle fleet, meeting a demand for rationalisation which has become increasingly urgent as the number of vehicle types proliferates. The logistic and training advantages of adopting a coherent homogenous fleet with an existing support solution are clear, and these are thrown into sharper relief when the possibility exists of sharing support infrastructure and spares holdings with other nations deploying the same vehicle.

For further details, contact:
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DVD 2009

The last couple of years has seen the annual vehicle show Defence Vehicle Dynamics (DVD) evolve from just a vehicle show to an all encompassing show of vehicles, battlefield infrastructure and related support services to the UK's Armed Forces.

Last year saw food, fuel, clothing, medical and general stores and accommodation mixing it up with the traditional vehicle manufacturers.

Joining this year will be representatives from Defence Equipment & Support's (DE&S) Air Commodities team (AC). They will be taking advantage of the unique opportunity to interact with DE&S teams and the wider industry over the two days at Millbrook, Bedfordshire, on 24/25 June.

The AC team is responsible for managing the through-life operation of airfield specialist vehicles and ground support equipment used by the aircraft of all three services. Whilst the primary user is the RAF, the AC's equipment capability is used on ships, at Naval Stations and by Army Aviation units at home and overseas in all environments. The equipment it supplies and supports includes everything from personnel safety equipment to large aircraft tow tractors.

On display at this year's DVD event will be some of the equipment

the team supplies and supports to the tri-services. This will include airfield infrastructure such as, 'Multi-Function Aviation Ground Equipment' (MFAGE) and 'Multi-Function Aviation Servicing System' (MFASS), as well as inflatable targets used for 'air to ground recognition'. Also on show will be a range of the vehicles utilised by the three services to move aircraft or load and unload airfreight. A range of working at height personnel protection equipment will form a further part of the AC's offer.

Group Captain Chris Daykin, Team Leader in Defence Equipment and Support's Air Commodities (AC) team, said: "We have taken the decision to attend DVD this year to raise the profile of the AC team and the diverse range of equipment it procures and supports. The timing is ideal as we are embarking upon a programme to transform the delivery of our Ground Handling capabilities, and incentivising industry to take on a good deal of this delivery may well offer best value for money."

The AC team is not the only one making a debut at this year's DVD. The newly procured vehicles Wolfhound, Husky and Coyote from the Tactical Support Vehicle programme, The Springer under the care of the General Support Vehicle team and the new Royal Engineer Deployable Engineering Workshop will be making a presence.

With so many new and exciting offerings from industry to meet the needs of armed forces today DVD is not a show to be missed. Personally I am looking forward to the new menu rations from the Defence Food Group as first indications are it is gorgeous and a welcome change.

Davina White Account Executive
G3 DEFENCE

Dingo (Krauss-Maffei Wegmann)

Operational Utility Vehicle System trials due later this year

Late last year the Defence Equipment & Support organisation made the down select for the first phase of the UK's major Operational Utility Vehicle System (OUVS) programme.

There are currently two requirements, OUVS (Small) and OUVS (Large) and contractors down selected for the OUVS (Small) requirement were Babcock, General Dynamics, IVECO, Krauss-Maffei Wegmann, Lockheed Martin, Mercedes and Navistar Defence.

Contractors selected for the OUVS (Large) requirement were General Dynamics, Lockheed Martin, Mercedes, Navistar Defence, Renault and Thales.

Not selected for any part of the OUVS programme were AM General, BAE Systems, Land Rover, MAN Truck, NP Aerospace, Oshkosh, Rheinmetall, Supacat and Universal Engineering.

Since then Land Rover has teamed with Renault Trucks Defense with the latter being prime for OUVS (Large) and former for the separate Light Protected Patrol Vehicle (LPPV) requirement which aims to replace the current Land Rover Snatch vehicles.

This has claimed the lives of many British troops due to its inadequate protection as it was originally designed for operations in Northern Ireland.

At this stage it is by no means certain which contractors will respond to the Invitation to Tender (ITT) when it is issued in mid-year as selected contractors will be required to submit vehicles at their own costs for trials at the Millbrook Proving Ground from September this year.

These will be along similar lines to the " Trial of Truth " that took place in late 2007 for the Future Rapid Effect System – Utility Vehicle (FRES-UV).

Most OUVS will be issued to the British Army but some will also go to the Royal Air Force and Royal Navy (Royal Marines).

As originally conceived OUVS was to replace all current in service lighter vehicles including all Landrovers, now BAE Systems Pinzgauer and the Reynolds Boughton RB44.

This would have required the purchase of up to 16,000 OUVS backed up by a full 25 year through life support package.

Since then the requirement has been reduced and under the first tranche it is now expected that only between 1,200 and 1,500 vehicles with a fully protected cab will now be procured with vehicle selection now expected some time in 2010 following the trials.

Christopher Foss Defence Journalist

General Dynamics UK could offer this MOWAG Eagle IV (4 x 4) currently in production and service with Denmark and Germany to meet the OUVS (Small) requirement as it features a protected central crew compartment (MOWAG)

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British Army to deploy new Tactical Support Vehicles

To support its expanding fleet of Mastiff Heavy Protected Patrol Vehicle (HPPV), Cougar Medium Protected Patrol Vehicle (MPPV) and the Jackal high mobility patrol vehicle the British Army will soon start to deploy a fleet of Tactical Support Vehicle (TSV) to Afghanistan valued at about GBP300 million.

The Tactical Support Vehicle (TSV) programme was identified during the Theatre Equipment and Capability Review (TECR) last year with the go ahead for the programme being given the green light late last year under the Mobility Protection Package.

In addition to the TSV this GBP700 million programme also includes the rapid procurement of just over 100 Singapore Technologies Kinetics Warthog all terrain tracked carrier (a further development of the Bronco in service with Singapore Army), additional Jackal patrol vehicles and the Buffalo specialist mine clearing system.

There are three distinct classes of TSV, light, medium and heavy and these will be used to carry additional supplies such as ammunition, rations and water for the Jackal, Cougar and Mastiff vehicles as well as undertaking additional roles.

The TSV (light) requirement is being met by the Coyote with 80 being supplied under a GBP 74 million (USD 108) million contract awarded to Supacat.

This contract also includes the supply of 100 of the latest Jackal 2 patrol vehicles which is further development of the currently deployed Jackal of which 130 units have already been provided in two batches.

Supacat at Dunkswell is the Coyote design authority and is also responsible for actual design, development, integration and overall programme management but the Coyote vehicle will be manufactured by the Land Systems business unit of Babcock Marine at their Devonport facility.

This is where the original Jackal patrol vehicle was built and where production of the last enhanced Jackal 2 is already underway.

The first batch of Coyote are being built by Supacat as production ramps up at Babcock Marine who will then be producing both Jackal 2 and Coyote vehicles at the same time as these share a number of common components.

The Coyote has a similar layout to the Jackal with the open crew

The Husky Tactical Support Vehicle (Medium) will be based on the Navistar Defense MXT (4 x 4) cross country vehicle Photo courtesy Navistar Defense

The Coyote TSV (light) will be similar to this Supacat Extenda (6 x 6) Photo courtesy Supacat

compartment at the front but is a 6 x 6 design with a flatbed area at the rear which can be rapidly configured according to mission requirements. Protection elements will be built into the Coyote.

TSV (Medium) will support the recently introduced Force Protection Ridgeback MPPV and probably the already deployed Thales Australia Bushmaster Infantry Mobility Vehicle (IMV).

To meet this requirement a total of 262 Navistar Defense MXT-MVA (4 x 4) vehicles are being acquired called Husky under a USD 189 million contract announced in April.

This will be based on their MXT (4 x 4) chassis with power pack at front, fully protected crew compartment in the middle and cargo area at the rear.

Production will be undertaken at the companies West Point, Miss assembly facility with deliveries scheduled to start in the second half of this year. There will be three versions of Husky, cargo, ambulance and command vehicle.

Dytecna of the UK will carry out modifications to the MXT-MVA at their Malvern facility with Plasan providing the survivability solution.

To support the Mastiff HPPV a new vehicle developed by Force Protection is being fielded called the Wolfhound with a total of 97 being supplied under a GBP 90 million contract.

The UK has already taken delivery of a total of 108 Mastiff I in two versions and ordered a total of 172 Mastiff II in three versions.

Wolfhound will be built by the recently formed company of Integrated Survivability Technologies Ltd (IST). It is based on the Mastiff design and will have a fully protected crew compartment and a load area at the rear which can take a maximum load of 4.5 tonnnes.

A 7.62 mm machine gun will be fitted for self-defence purposes and it will have a crew of two with seats for an additional two people. Wolfhound will have the highest level of protection of the TSV soon to be deployed.

This is a joint venture company formed between Force Protection of the US and NP Aerospace of the UK who have been responsible for integration and final delivery of the Mastiff I and II vehicles to the British Army.

Wolfhound is a further development of the Mastiff and has a fully enclosed cab with the flatbed cargo area at the rear
Photo courtesy Force Protection

In addition to being used to carry cargo and ammunition the Wolfhound is also expected to be used to tow the Royal Artillery 105 mm Light Gun currently deployed to Afghanistan.

This is currently towed by the unprotected Pinzgauer vehicle with another vehicle carrying additional ammunition.

It is expected that all of the vehicles will be fitted with the General Dynamics Bowman communications equipment and advanced electronic devices to counter IEDs. This will be provided as government furnished equipment.

Christopher Foss Defence Journalist

1685

1910

1926

COURTAULDS GROUP 1962

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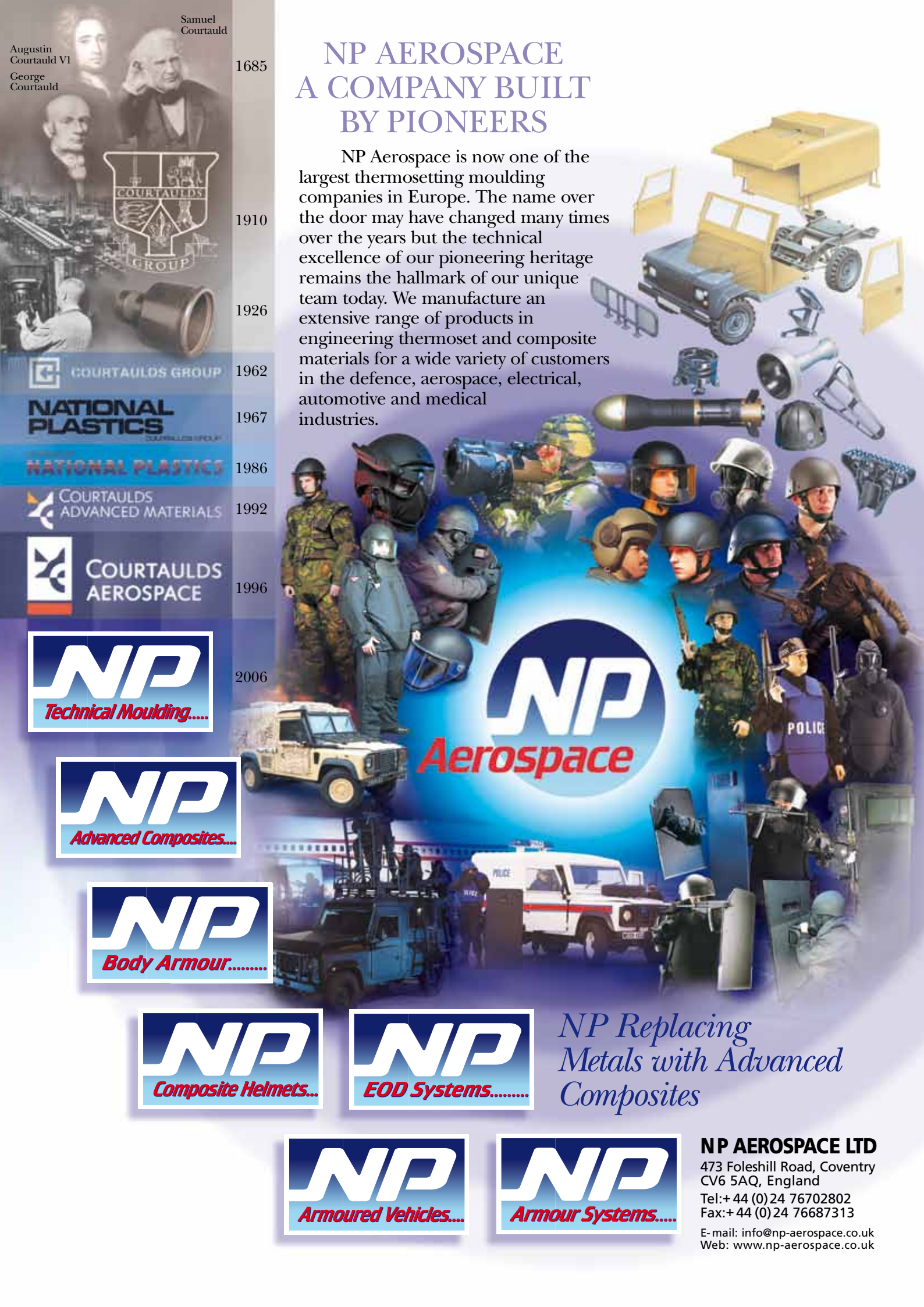

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Panther upgraded for Afghanistan

Under an Urgent Operational Requirement (UOR) contract, BAE Systems Global Combat Systems Newcastle-upon-Tyne facility has upgraded a batch of Panther command and liaison vehicles to Theatre Entry Standard (TES) and the first of these have now been deployed to Afghanistan.

While most of the modifications were carried out in the UK, three BAE Systems engineers carried out final modifications in Afghanistan to speed up the programme.

Following extensive trials with five different vehicles the now BAE Systems Global Combat Systems was awarded a contract for a total of 401 Panther command and liaison vehicles and by late last year over 330 of these had been completed.

While most of the Panthers are being used by the British Army some will also be issued to the RAF Regiment.

Baseline Panther has a central protected crew compartment which provides protection from small arms fire and shell splinters as well as protection against some mines.

For TES Panther has been modified in a number of areas including protection for the engine compartment at the front of the vehicle, installation of electronic devices to counter improvised explosive devices, rear view camera, new rear cargo pod and larger roof hatches.

As originally built the Panther has five seats, two in the front (commander/gunner and driver) and three in the rear.

Panther TES has two seats in the front and two in the rear with the General Dynamics UK Bowman communications system now installed between the two rear seats.

Mounted on the roof is the Selex Galileo Enforcer Self-Defence Weapon (SDW) armed with a 7.62 mm General Purpose Machine Gun (GPMG) and its associated Surveillance and Target Acquisition (STA) sensor package.

Enforcer is installed on many other UK armoured fighting

Latest Panther TES command and liaison vehicle clearly showing additional modifications including applique armour (left) and standard production Panther (right). Both are fitted with the Selex Enforcer RCWS armed with 7.62 mm GPMG (BAE Systems)

vehicles including upgraded FV432 Mk 3 Bulldog armoured personnel carriers and some Challenger 2 MBTs.

Panther it based on the Italian IVECO Defence Vehicles Light Multirole Vehicle (LMV) customised in the UK to meet UK requirements.

According to BAE Systems Global Combat Systems in addition to the TES modifications now being fitted to a portion of the UK fleet, all Panthers have about 100 further changes to the original basic Italian vehicle.

Under current plans the last of 401 Panthers will be delivered to the British Army later this year but it is possible that a small batch of additional vehicles will be ordered.

Christopher Foss Defence Journalist

Standard production Panther command and liaison vehicle ready for delivery at BAE Systems Global Combat Systems Newcastle-upon-Tyne facility (Christopher F Foss)

Jackal 2 patrol vehicle to be fielded this year

The latest generation Jackal 2 patrol vehicle is now in production with the first vehicles expected to be delivered to the British Army in the near future with about 110 vehicles to be delivered.

Under the terms of the MoD contract, Supacat is responsible for Jackal 2 design, development, prototype integration and programme management while Babcock Marine undertake planning, purchasing and production of the vehicle at its Devonport facility.

Jackal 2 has a number of significant improvements over the currently deployed Jackal including the installation of the more powerful Cummins 6.7 litre engine, seating for four crew members rather than three, greater internal volume, upgraded electric's, improved protection, upgraded suspension for enhanced mobility and additional external stowage.

They will typically be armed with a .50 M2 HB machine gun (MG) or a Heckler & Koch 40 mm Grenade Machine Gun (GMG) on top and a 7.62 mm General Purpose Machine Gun on a swivel mount at front left.

It will also be fitted with the General Dynamics UK Bowman digital communications system and devices to counter Improvised Explosive Devices (IED).

Jackal 2 will share many common components with the Coyote Tactical Support Vehicle (Light) which will also be fielded by the British Army in Afghanistan later this year.

Christopher Foss Defence Journalist

Photo courtesy Supacat

Attack Helicopters

Part one of a two part examination into the UK operational helicopter fleet

Helicopters had been used in war for troop lift and casualty evacuation in the 1950s but the first use of armed helicopters actually pre-dates the war in Vietnam.

Photos: © Agusta Westland NV

It was the French Army in Algeria in the early 1960s who fitted wire guided anti-tank missiles to their Alouette liaison helicopters and so began a development process that is still under way.

Of the helicopters currently in British service the Westland Lynx, the AH-64 Apache and the AW 101 Merlin. The Lynx is the veteran that made its maiden flight as far back as March 1971.

It would prove to be a superb and versatile machine operating on land and off the tiny flight decks of Royal Navy warships. The Lynx has a crew of two or three and armament consists of two Stingray torpedoes or four Sea Skua missiles or two depth charges in the naval version. For land operation the attack version of the Lynx mounts a range of weapons that include two 20mm cannon, two 70mm rocket pods and up to eight Tube-launched Optically Tracked Wire guided (TOW) anti-tank missiles. Basic armament can be a GPMG or Browning AN/M3 Heavy Machine Gun (HMG).

The operational début of the Boeing AH-64 Apache was in Operation "Just Cause" the invasion of Panama. However it was in Operation "Desert Storm" that the helicopter confounded its critics who had argued that it was too complex and too costly

The Naval Anti Submarine Warfare (ASW) variant saw action in British service during Operation "Corporate" the Falklands War in 1982. None were shot down, but three were lost aboard vessels hit by Argentine bombs or Exocets, one on the MV Atlantic Conveyor and one each on board HMS Coventry and HMS Ardent. However it was in Operation "Desert Storm" the air operations phase of the 1991 Gulf War that Fleet Air Arm (FAA) Lynx proved lethally effective when, armed with Sea Skua missiles, they sank the small Iraqi Navy along with Kuwaiti patrol boats captured by the Iraqis. The Lynx armed with TOW

missiles also saw service with the Army Air Corps (AAC) of the British Army in Desert Sabre.

AAC Lynx saw action in Operation "Barras" the rescue mission for 11 British soldiers held hostage in Sierra Leone on September 10, 2000.

The most recent wartime mission for the Lynx was during Operation "Telic" the invasion of Iraq in 2003. On May 6, 2006 a FAA Lynx from 847 Naval Air Squadron was shot down over Basra. It is assumed that it was hit by a Rocket Propelled Grenade (RPG), though a Surface to Air Missile (SAM) has not been ruled out. The Lynx crashed into a house and burst into flames, killing all five on board, including the Commanding Officer of 847 NAS.

The operational début of the Boeing AH-64 Apache was in Operation "Just Cause" the invasion of Panama. However it was in Operation "Desert Storm" that the helicopter confounded its critics who had argued that it was too complex and too costly. On the night of January 17, 1991 eight US Army AH-64As punched a hole in the Iraqi radar network that allowed Coalition bombers to enter Iraqi air space without detection The Apaches carry an asymmetrical weapons load of Hydra 70 flechette rockets, Hellfires, and one auxiliary fuel tank each. During the subsequent 100-hour ground war, a total of 277 Apaches took part destroying over 500 tanks and large numbers of APCs.

The Apache has a maximum speed of 293 km/h (182 mph) and has a combat radius of 480 km (300 miles).

The AgustaWestland Apache developed for the British AAC differs from the American machine in several distinctive ways. It is powered by Rolls-Royce Turbomeca RTM 322 01/12 engine that develops 1,565 kW (2,100 hp) in contrast to the original GE engines rated at 1,410 kW (1,890 hp). They have anti-ice protection for the rotor blades, Helicopter Integrated Defensive Aids System (HIDAS) the BOWMAN secure radio communications system and can carry 76 air-to-ground rockets. The Apache is an attack helicopter but on January 13, 2007 it was briefly re-roled as a troop lift machine after a 200-strong British force, led by the Royal Marines of 45 Commando attacked a major Taliban complex in southern Helmand Province. After several hours of intense fighting the Marines regrouped and it

was discovered that Lance Corporal Mathew Ford was missing. A rescue mission was mounted using four volunteers three Royal Marines and a Royal Engineer who were strapped to the stub wings of two Apaches. The helicopters could not be flown faster than 50 mph to ensure the safety of the extra passengers from down thrust of the rotor blades. The Apaches landed under fire with one inside the compound, the rescuers dismounted and were able to recover Ford's body and fly him out on an Apache. During the unique operation a second pair of Apaches provided suppressive fire. None of the rescuers were injured.

The first operational deployment of the Agusta/Westland Merlin AW 101 (formerly the EH 101) was in early 2003 with the RAF squadrons operating the Mk 3 version in support of British troops in the Balkans. In this role it was employed for troop lift and casualty evacuation.

The FAA and RAF helicopters have an array of passive defences that include chin mounted Forward Looking Infra-red (FLIR). The AW101 is equipped with Chaff and flare dispensers, Infra-red (IR) jammers, Electronic Support Measures (ESM) and a laser detection and warning system.

The Mk I naval version has two hard points for weapon carriers, on which it can carry four Sting Ray torpedoes or Mk 11 Mod 3 depth charges. The Mk1 and Mk3 variants can mount the General Purpose Machine Gun (GPMG) in up to five locations in the main cabin pointing out of door and window apertures.

The Mk 3 troop lift version can

accommodate up to 24 seated or in an operational environment 45 standing troops and their equipment. Alternative loads include a medical team and 16 stretchers or cargo pallets. The cabin floor and rear ramp are fitted with flush tie-down points, a semi-automatic cargo release unit (SACRU) and can take a 3,050 kg load. A cargo hook under the fuselage can carry external loads of 5,440 kg using a SACRU. A rescue hoist and a hover trim controller are fitted at the cargo door.

The attack helicopter is now a weapon across a three dimensional battleground on land and sea, but however fast and sophisticated they may be, ultimately is the young man or woman at the controls who can demonstrate the power and versatility of machines like the Lynx, Apache and Merlin.

In the next issue we examine the Chinook, Sea King and Puma.

Will Fowler Editor G3 DEFENCE

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Is it a bird, is it a plane?

BAE Systems' MANTIS UAS development program is being developed primarily for ISTAR capability, but its potential to be armed as a 'Hunter-Killer' UAS is also under careful scrutiny by the MoD.

Small in number but proving immensely effective in Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) roles, unmanned aerial systems (UAS) are paving the way for earlier and better insertion of network enabled capability in joint operations. Among the UAS in operation are vehicles of US, Israeli and British origin.

The highest priority for unmanned aerial assets in Afghanistan has been – and will remain – intelligence gathering and rapid dissemination of derived data, including high resolution optical and radar imagery and full motion video. The Duke of Wellington – arguably Britain's most famous combat leader – attributed his success in defeating Napoleon's armies in Spain and France to "knowing what was on the other side of the hill." The nation's current combat leaders faced with hostile terrain and an almost ephemeral opponent place no less importance on developing accurate, reliable and, above all, timely intelligence on the location, movement and behaviour of enemy forces. UAS are particularly well suited to providing such intelligence, especially over time, the persistent nature of their operations lending themselves easily to analysis of patterns of behaviour.

The ill-fated Phoenix UAS – ahead of its time when originally fielded but prone to reliability problems and fated to be pilloried in the press as several machines were lost inexplicably on operations – has now finally been retired from service. This left a capability shortfall, which MoD planners have responded to with a variety of programmes.

First and most obvious is the Watchkeeper programme – at between £7-900 million the most ambitious current production UAS programme in Europe. Based on a much modified existing and proven airframe – the Israeli Hermes 450 from Elbit Systems – Watchkeeper will bring integrated ISTAR and NEC capability to the strategic intelligence mission when fielded. The platform is currently undergoing final flight testing in Israel, after which testing will commence in the UK towards the end of 2009 on testing sensitive equipment, including the radar and datalink. The first platforms, together with their associated ground support equipment, will be delivered to the British army in October 2010 and an initial in-service date of early 2011 is currently predicated. In light of the urgent nature of the operational requirement, however, there is an aggressive attempt under way to bring that timeline forward if possible.

"The Watchkeeper UAS is due to enter service in an ISTAR role in 2010, though there are reported efforts to bring this date forward in the light of urgent operational requirements in Afghanistan."

This does not mean that commanders in Afghanistan are doing without their eye on "the other side of the hill." The MoD purchased three MQ-9 Reaper UAS from the United States late in 2007. Two of which were immediately sent out to theatre to provide an interim ISTAR capability. Operated by 39 Squadron, Royal Air Force. The unit has personnel embedded within it from both the army and the Royal Navy. From Creech Air Force Base in Nevada the Reapers have performed sterling work according to representatives of the squadron speaking at a number of UAS conferences over the last eighteen months. Air Chief Marshal Sir Glenn Torpy, Chief of the Air Staff referred to Reaper as "a major milestone for the RAF, which will significantly enhance the UK's surveillance capability in Afghanistan."

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One of the two operational airframes, however, crashed for apparently mechanical reasons in April 2008 and had to be destroyed by bombing to ensure sensitive equipment – some of which was successfully removed – did not fall into the wrong hands.

Photo courtesy Elbit Systems

This left commanders with a single Reaper airframe to provide ISTAR coverage, although an additional facility was already available (see below). However, the MoD had already taken action to procure further MQ-9s. The US Defense Security Cooperation Agency informed Congress in January 2008 that the British wished to acquire a further ten airframes, plus radar, ground control stations, associated equipment, spares and support under a contract with an estimated value of $1,071 million.

Unlike USAF Reapers, the RAF's systems are apparently not armed, although they have the capacity for weapons carriage. Indeed, there are indications that at least one Reaper in RAF service dropped ordnance in support of ground forces in June last year. Furthermore, Wing Commander Andrew Jeffrey, commanding officer of 39 Squadron, indicated to the Royal Aeronautical Society's UAV Systems Conference in London in November 2007 that the RAF Reapers would have "offensive capability" in the immediate future. The MoD is procuring GBU-12 guided bombs and Hellfire missiles for the purpose.

An additional interim facility has also been provided by MoD while awaiting Watchkeeper's introduction into service. Since mid-2007, Thales UK has been providing Hermes 450 airframes in an ISTAR role in Afghanistan under a 'pay by the hour' service arrangement, which has created significant interest in other countries with similar requirements, including Canada and France. By March this year, the UAS had logged in excess of 18,000 flight hours in Afghanistan, with Thales supporting the operation with contractor logistics, programme support and training facilities in addition to the airframes. The original contract, thought to be valued at some £60 million, is imminently expected to be extended through the 2011 service entry date for Watchkeeper.

A home-grown UAS has also been flown in Afghanistan, under Project Morrigan, a joint initiative between BAE Systems and the RAF's Air Warfare Centre at RAF Waddington. HERTI, a BAE-designed UAS intended to provide autonomous ISTAR capability, was flown in theatre in late 2007 "in order to develop potential Tactics, Techniques & Procedures for the integration of HERTI's capabilities into existing joint manned/unmanned force structures," according to the company. Wing Commander Mike Humphreys, Officer Commanding the RAF's UAV Battlelab, said it had been "successful in demonstrating its capability in an operational environment." Both the RAF and BAE Systems are satisfied with the progress and development of the project thus far."

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Where does British employment of UAS go from here? Although there is a UAS roadmap in existence, precise details in the public domain are sketchy at the moment given the obvious issues of operational security. However, the MoD's interest in BAE Systems' privately funded Mantis UAS and the significant development work going into the Taranis unmanned combat air system (UCAS) project would seem to indicate the serious intent of adding armed unmanned systems to the RAF's fleet in the not too distant future. Lessons learned in Iraq and Afghanistan, the ever accelerating progress of autonomous decision-making capability and the insistence that a human being will be in the decision loop wherever potential weapons release is concerned would seem to indicate an increasing comfort level with the prospect of robotic weapons systems. As part of the force mix, this is probably the right path to follow. As a replacement for manned aircraft in a variety of roles, however – that debate will continue for years to come.

Tim Mahon Defence Journalist

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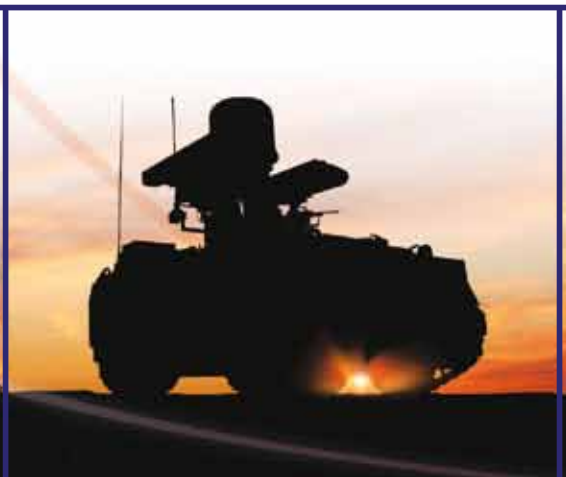


Type 45: The last British made warship?

With much fanfare the first of the long-awaited Type 45 anti-air warfare destroyers arrived in Portsmouth at the end of January but her prolonged development, which is still under way, must raise the issue of whether or not the United Kingdom will be able to produce as sophisticated a surface combatant later this century.

Photos: BVT Surface Fleet Ltd

The appearance of HMS Daring in a way partly answers the question for she is the successor to the 30-year-old and battle-proven Type 42 destroyers. The first Type 42s had barely completed their trials before the Royal Navy began contemplating their successors and in a fit of pan-European euphoria the Ministry of Defence joined the NATO Frigate 90 (NFR 90) programme.

But trying to shoe-horn a single platform into multiple shoes, or operational and industrial requirements, saw NFR 90 split into a series of demi-international programmes including Project Horizon involving France, Italy and the United Kingdom. Even this programme could not be held on course in the storm and the United Kingdom was unable to rationalise its shipborne requirements with those of its partners and after nine years the partnership

fell apart in 1999. Something was salvaged from the wreck in that much of the sensor and weapon system were common between the new Franco-Italian horizon programme and that of the new Type 45s.

The Type 42s were supposed to be replaced from early in this century and the Type 45s are at least two years later reaching the fleet. The 7,450-ton ships are more sophisticated than the Type 42s with a smaller crew (191 compared with 287) and compared with them she has a combat radius of 3,000 nautical miles (5,500 kilometres) against 2,000 nautical miles (3,700 kilometres) in eight or nine days, remain three days on station and then return all without replenishment. It is worth noting that in trials she has exceeded her top speed by 2.5 knots at 31 knots, although this was when she was lightly loaded.

Yet the first of class will not be operational until 2011 The second test of her GWS 45 Sea Viper, formerly Principal Anti-Air Missile System (PAAMS), combat system was only on February 4 (a week after HMS Daring reached Portsmouth) and much work needs to be done. The Royal Navy anticipates Sea Viper could complete its tests in the Mediterranean between December of this year and May of next year but the official in-service date for the destroyer is October 2010 and she will still require another two months of training before she is fully operational.

Sea Viper consists of the BAE Systems Type 1046 (based upon the Thales Nederland S.1850 or SMART-S) search radar, the Type 1045 Sampson multi-function radar, Raytheon Type 1048 surface search radar, the CMS-1 combat management system, DCNS Sylver A50 48-cell launcher and Aster 15/30 surface-to-air missiles. The ship also has an ITT/Ultra MFS 7000 sonar, a 4.5 inch (113mm) gun as well as two MSI DS-30 single 30mm guns supported by GSA 9 electro-optic fire control (the former Radamec 2500). She can also carry up to 60 troops and her deck can accommodate a medium-size helicopter; either Merlin HM.1 or Chinook while unmanned aerial vehicles can also be operated by the destroyer.

Royal Navy began contemplating their successors and in a fit of pan-European euphoria the Ministry of Defence joined the NATO Frigate 90 (NFR 90) programme

There is space amidships for up to eight launchers for Harpoon surface-to-surface missiles but it is unclear whether or not these will usually be carried but improvements to the weapon fit are already under consideration. Next year she will receive Phalanx 1B close-in weapon systems and there is space forward of the Sylver launcher for another weapon system which might be either the Lockheed Martin Mk 41 vertical launcher system (which would allow Tomahawk land-attack missiles to be embarked) or a 155mm gun system. The United Kingdom is currently developing such a gun system based upon the 4.5 inch Mk 8 and will make a decision once firing trials with a prototype have been concluded.

It is clear that much of the combat system for future British surface combatants will have to be developed internationally but the question is where will they be built? Only a couple of years ago a Defence Industry Strategy was unveiled but already there are doubts about the Government's commitment to it. A key element was to be the replacement of the Royal Fleet Auxiliary's major platforms, the MARS (Military Afloat Reach and Sustainability) programme which envisaged nearly a dozen vessels. The first phase, six fleet tankers, has now been deferred while Whitehall tinkers with it but what was significant about this phase was that the hulls would have been built in foreign yards and fitted out in British ones.

With even this work now denied and with doubts being raised about the Future Carrier (CVF) programme how can the shipbuilding industrial base be maintained. Shipbuilding requires a steady stream of orders to maintain the skills base and once the stream is dammed it is hard to get it flowing as the Astute programme all too clearly demonstrates. It was significant that one of the oldest (and commercially most successful) warship builders, the VT Group, have announced their decision to withdraw from shipbuilding to concentrate on support activities leaving precisely four yards; two on the Clyde, one in Cumbria and the other in Portsmouth, but without orders for how long?

Industrially, operationally and commercially much will depend upon the Future Surface Combatant (FSC) programme of 15-20 ships which is sailing towards Main Gate. FSC is for a modular family of ships which may loosely be described as frigates (C1) frigates, corvettes (C2) and multi-role surface combatants (C3). The latter may well be capable of acting as both offshore patrol vessels and mine counter-measures ships rather like the much troubled US Littoral Combat Ship (LCS) programme.

European navies are already building multi-role vessels for offshore patrol missions but, to date, none is seeking a sophisticated surface combatant role for them. The FSC therefore offers considerable commercial possibilities but it seems unlikely that the United Kingdom now has the capacity to exploit any such success. Politically and strategically there will still be a requirement for domestically designed and produced warships but the greatest obstacle is in Whitehall.

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As the distinguished military historian Correlli Barnett has made clear the British Establishment has never embraced industry. The mandarins do not understand industrial requirements (as every IT programme demonstrates) while the politicians are incapable of taking long term views. As the Future Rapid Effects System (FRES) fiasco clearly shows the Defence Industry Strategy is a dead letter which is now wrecking the country's ability to develop and to produce armoured vehicles. The fear is that Whitehall's neglect will have a similar impact upon the British warship industry.

E.R. Hooton Defence Journalist

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Medic!

The Field Hospital at Shaibah provides medical cover for MND_SE_ as well as helping treat Iraqi civilians with life-threatening injuries. Photo MoD

In the moments after a contact, or the explosion of an IED, as the smoke clears and even while rounds are still cracking around the soldiers as they return fire, MEDIC! - This urgent shout brings the unit's Combat Medic racing to the casualty.

The medic knows that he or she is working in what trauma experts call the "Platinum 10" - the crucial ten minutes in which if the soldier is stabilised there is a greater chance of surviving as long as they are evacuated quickly to a combat support hospital. This journey and the surgery accomplished in the next 60 minutes is known as the "Golden Hour".

The term was coined by a former US Army surgeon Dr R. Adams Cowley who drawing on his own experience, and French research following World War I, said "There is a golden hour between life and death. If you are critically injured you have less than 60 minutes to survive. You might not die right then; it may be three days or two weeks later -- but something has happened in your body that is irreparable"

Vital as the Golden Hour may be the Platinum 10 is critical, if bleeding is not stopped, the airway properly cleared and breathing established the soldier will be dead on arrival at the combat support hospital. While a front line medic can undertake this – all soldiers receive basic medical training so that they can start to stabilise a comrade as soon as he is wounded. In the light of experience in Iraq the US Army has introduced the intense three day Combat Life Saver Programme which is designed to ensure that in each vehicle there is a trained soldier with an aid bag containing tourniquets, dressings and medical equipment who is also trained to administer intravenous fluids.

Wounded soldiers have often suffered from what is described as polytrauma – multiple injuries. In Accident and Emergency in a civilian hospital doctors and nurses encounter polytrauma in car accident victims who may have broken or crushed limbs and burns. In a combat zone soldiers have injuries from the high pressure waves caused by an explosion, and wounds from shell or mortar bomb fragments, or gunshot wounds. If a soldier has been close to an explosion he may suffer temporary deafness or blindness, however this may be an external symptom of more severe injuries like brain damage. More obvious injuries are loss of limbs or wounds. One factor working in favour of soldiers making a recovery is that they are normally fit, carrying no excess weight and have no complicating conditions like diabetes or high blood pressure. They may however be dehydrated and tired.

In operations in Iraq and Afghanistan despite their best efforts to take on fluids troops may become severely dehydrated without having suffered any form of battlefield injury. Depending on the length of the mission the combat medic will carry a certain amount of intravenous (IV) fluids and tubing. Normal Saline/ Sodium Chloride and Hetastarch/ Hextend are usually carried. More specialised equipment is required to get fluid into the body if a soldier has suffered from massive blood loss, burns or traumatic amputation.

If a soldier is losing blood fast, a tourniquet may be used to compress

A Royal Navy medic x rays the broken hand of an Iraqi worker at Basra Airport. Photo MoD

C-17 Flying Hospital
Photo MoD

an artery and stop massive life threatening haemorrhage. The most obvious example of this type of injury where a tourniquet would be appropriate is blood loss from the exit wound caused by a high velocity round fired at short range. However modern dressings that expand to fill major wounds and speed up blood clotting are preferred since because tourniquets cut off the blood supply to a limb they can cause complications.

Where a soldier's airway is clogged with debris or he has suffered a sucking chest wound airway management becomes critical. Among the equipment the medic will carry is what is known informally as a "Nasal Trumpet" or more formally as a Nasopharyngeal Airway (NPA). This is a flexible tube that keeps the a nasal airway open following a facial injury. The hard "J" shaped plastic

C-17 Flying Hospital
Photo MoD

The crucial ten minutes in which if the soldier is stabilised there is a greater chance of surviving as long as they are evacuated quickly to a combat support hospital

Oropharyngeal Airway is used to keep the oral airway open, and can also be used to keep the teeth apart for a more permanent airway device. A 14 gauge catheter, at least 3.25 inches long, for needle chest decompression. Asherman chest seal, or Hyphin chest seal will also be in his kit.

A combat medic is also a front line pharmacist and will have in his pack first line antibiotics, Morphine, Ketamine and Narcan and Phenergan – the former counters morphine's respiratory depressing effects in case of an overdose while the latter is an anti-emetic treatment, which also increases the pain reducing effects of morphine.

A combat medic will have some items that will be found in a domestic first aid kit. These include surgical gloves, alcohol swabs, triangular muslin bandages, gauze bandages, adhesive bandage strips, hypodermic

needles and syringes, inflatable splints, burn dressings, trauma shears and the old staple of all first aid kits, safety pins

The combat medic also looks after the low level medical needs of the soldiers in his platoon and so has a small amount of medicines found in a the first aid cabinet in a home. These include pain killers, decongestants and cough mixtures, medicine for bowel conditions. Depending on the mission the combat medic may also carry a stethoscope, blood pressure cuff, opthalmoscope and thermometer which will allow him or her not only to treat soldiers within the platoon, but also civilians. In a counter-insurgency campaign the simple medical assistance that a combat medic can give to civilians can be a valuable way of winning "Hearts and Minds".

With these responsibilities it is appropriate that unlike other regiments or corps within the British Army the Royal Army Medical Corps has no battle honours since the dedicated and skilled young men and women who serve as combat medics and in front line surgical units and have been present at every war in which the British Army has been engaged.

Will Fowler Editor G3 DEFENCE

C-17 Flying Hospital
Photo MoD

C-17 Flying Hospital
Photo MoD

The Norwegian Golden Hour

Marshall Specialist Vehicles of the UK have delivered three containerised field hospitals to the Medical Section of the Norwegian Army. These hospitals are a critical link in the "Golden Hour" that ensures survival and recovery for a battlefield casualty.

The field hospital is built around 27 containers and tents and can be brought to a preparedness state in 20 minutes and be functioning as a hospital in 12 hours. It has a capacity of 50 beds for casualties and a staff of 60. The containers are 26 x 20 ft and can therefore be loaded into a C-130 or similar transport aircraft.

The three hospitals can be rotated so that while one is in the field, one has returned from operations and is being overhauled and the third is being used for training.

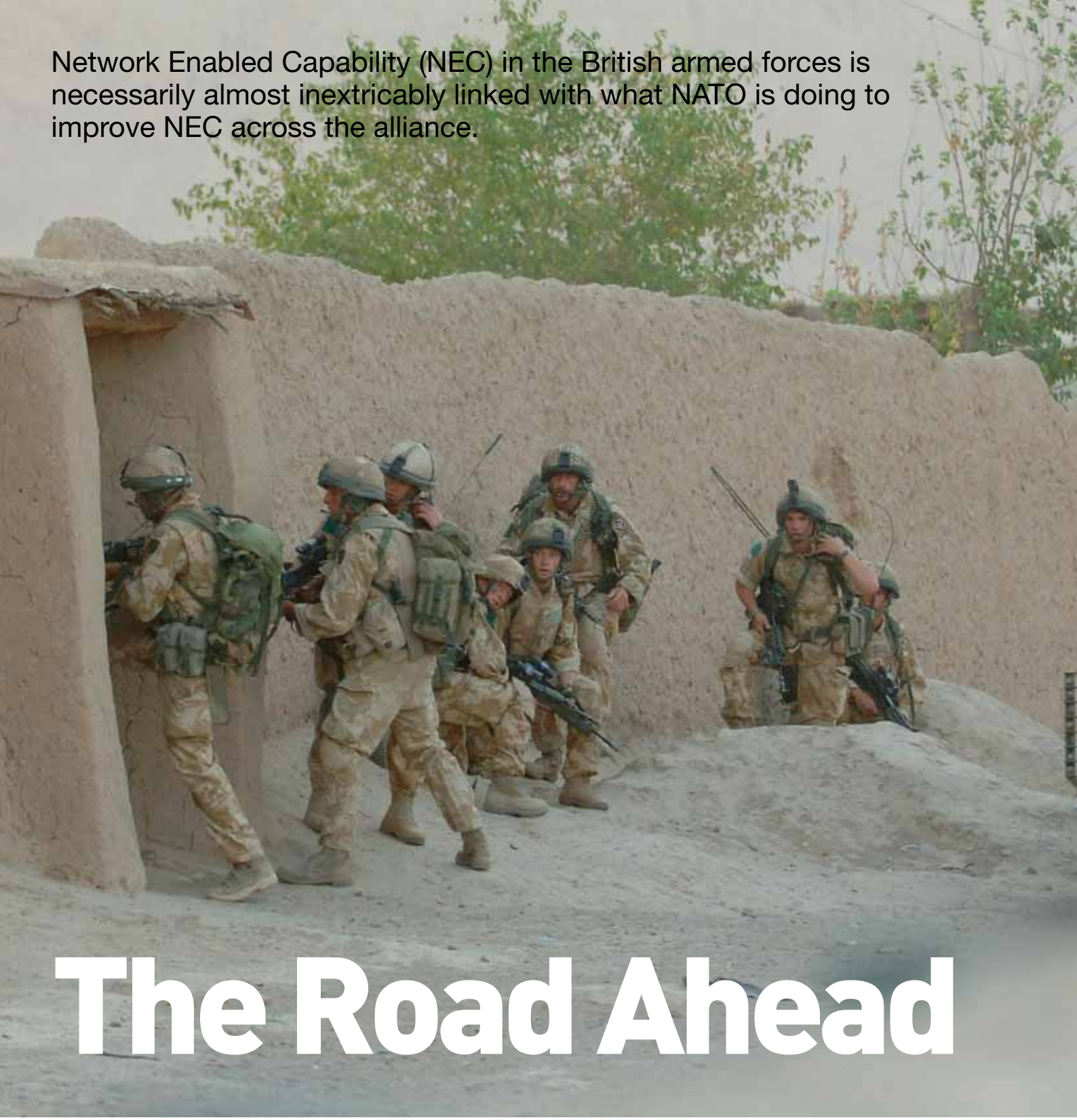
Each hospital includes triage and surgical facilities, recovery and high dependency beds. In addition, the support facilities include a blood bank, laboratory, pharmacy, medical gas generation and mortuary. The whole facility is CBRN protected and the climate can be controlled in each module.

The role envisaged for the field hospitals is both humanitarian and for support to NATO operations and as such they are a very flexible and versatile resource.

Operating Theatre

By Will Fowler Editor G3 DEFENCE

Network Enabled Capability (NEC) in the British armed forces is necessarily almost inextricably linked with what NATO is doing to improve NEC across the alliance.

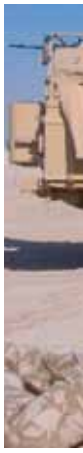


The Road Ahead

Lessons feeding back at national and alliance level from Iraq and particularly from operations in Afghanistan show that the injection of NEC at low enough levels to make a difference in the type of operations currently underway – and predicted for the foreseeable future – has a way to go before commanders can be truly comfortable. NATO, primarily through its own Consultation, Command and Control Agency (NC3A) is implementing a number of measures specifically aimed at achieving such an injection, with considerable attention being paid to enabling the individual soldier to bring greater effect on target in an integrated fashion. The plethora of 'soldier modernisation' programmes currently under way throughout Europe and the United States show intense desire on the part of the relevant armed forces to develop an NEC effector in the broadest possible manner, taking current operational requirements into account.

In the United Kingdom, the Future Infantry Soldier Technology (FIST) programme is intended to bring enhanced situational awareness and better capacity in information handling to the platoon level – the level at which most current operations take place. With an initial assessment phase having started in 2003, with Thales UK as the prime contractor, the programme is currently poised to leap from test and evaluation into production, although funding issues have caused serious delays in implementation efforts to date.

FIST will weld the benefits of state-



of-the-art technology into a single, integrated architecture, bringing enhanced capability to the individual soldier and the small infantry unit in five separate but complementary focus areas: C4I; lethality (weapons and sights); mobility (size and weight of equipment); survivability (clothing, body armour, low observable characteristics) and sustainability (logistics). Initial trials in 2005, which led to extended trials in 2006, proved the concept and identified the most efficient manner in which FIST might inject NEC into small unit operations. With a Main Gate decision due this summer for FIST Increment 1A (known as FIST STA for its focus on surveillance and target acquisition) and a target date of 2014 for fielding, FIST faces a number of challenges before achieving such a step change in infantry small unit capability.

The most fundamental challenge is the availability of adequate funding. Given current pressures on MoD resources, the striking of a balance between fiscal management and shoring up modern capability is becoming ever more difficult to achieve. Delays in the FIST programme – the original projected date of 2011 for fielding FIST Increment 1B, also known as FIST C4I, has slipped to 2014 – have, however, provided MoD with an unexpected extended test and evaluation period in which to develop robust solutions for the issues being fed back from the trials.

FIST will weld the benefits of state-of-the-art technology into a single, integrated architecture, bringing enhanced capability to the individual soldier

Among these issues the greatest attention is being given to overall system reliability and weight, with bulk and power consumption – and a consequent direct effect on sustainability – running a close second. A soldier on operations needs to be convinced that carrying weight that is not directly attributable to water, medical supplies and ammunition will nonetheless contribute to keeping him alive. Observers close to the programme believe that such a conviction has now taken hold at the small unit command level, but has yet to filter down to the individual. There is therefore a programme under way to achieve

A British soldier uses his personal bowman radio whilst on patrol in Afghanistan. Photo courtesy of Reuters

"The French Army's FELIN soldier modernisation programme brings additional capability to individual soldiers, but observers of the UK's FIST programme believe the latter will provide more appropriate support for true NEC in dismounted combat." Photo courtesy SAGEM

"The Future Infantry Soldier Technology (FIST) system will provide enhanced situational awareness and improved information handling." Photo courtesy Thales UK

swingeing reductions in weight and bulk of the various components that make up the FIST system, as well as consideration of whether a modular approach – making FIST available in a series of mission-specific configurations – might also assist in bringing about acceptance of the overall benefits of the system.

FIST, of course, does not stand alone in the range of NEC artefacts and systems being rapidly brought into play by the MoD. It will, however, stand as a paradigm for the effectiveness of NEC in theatre once it shows its capabilities in the battlegroup. In order to do this, a number of integration issues are being addressed. In addition to seamless melding of FIST onto the individual, the system needs to be integrated into the fighting vehicles from which the FIST-equipped soldier will dismount for operations and into the BOWMAN tactical communications network that will bring enhanced effectiveness to the information derived from the surveillance capabilities of FIST.

With the exception of the United States, there is no other infantry force that takes the concept of dismounted action quite as seriously as the British armed forces

Whatever shape the Future Rapid Effects System (FRES) armoured vehicle programme eventually takes, FIST will need to interface with individual vehicles at an intimate level. Initially, this will involve the integration of voice communications and the creation of a data gateway so that information available via an individual FIST tablet can be replicated inside the vehicle. This will bring a hitherto unavailable capability to the vehicle commander – his ability to 'see' the fire teams once dismounted, with a consequent immense improvement in situational awareness. This is one arena in which FIST differs in essence from many of its counterpart programmes in other nations. With the exception of the United States, there is no other infantry force that takes the concept of dismounted action quite as seriously as the British armed forces, and the fact that FIST has been designed from its genesis as a tool to enhance dismounted combat is a fundamental driver in steering the programme, according to observers close to MoD's thinking.

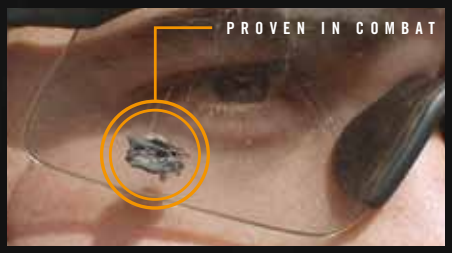
The feedback from current operations is also a key driver in continued FIST development. Officers from the Defence Equipment Capability directorate rotate regularly through operational theatres on three-month tours in order to shorten the feedback loop as much as possible, and to inspire thinking on what will be required of such systems as FIST in the short- and long-term future.

There are vehemently held and often expressed opinions that FIST is needed right now – and comparisons drawn with the only soldier modernisation programme in current series production, the French Army's FELIN system. Given the difference in operational concept and the fact that MoD is determined to ensure that FIST is the core around which infantry unit NEC operations will revolve in the future, it is, perhaps, only sensible that the system is given sufficient time to mature the technologies and integration techniques necessary to achieve the objective first time out of the box. The extent to which successful fielding of FIST will inform parallel developments in other areas of NEC injection into operations should also not be underestimated.

Tim Mahon Defence Journalist

IN JUST THE BLINK OF AN EYE YOU CAN LOSE AN EYE

April 2006. Nighttime mission outside Fallujah. "That blast was so strong it threw me around like no tomorrow…" This gunner was ready with Revision Sawfly® Eyewear. His vehicle was rocked. Shrapnel flew. His sight was saved. IEDs don't come with warning signals. You have to be ready. Ready for the worst. Ready with the best. And that's Revision Eyewear. Powerful ballistic protection. Flawless distortion-free optics.



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Personal Weapon Sy

A view of the latest “bullpup” personal weapon systems available today

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Slovenian Army started to field FN F2000, first 2000 rifles where delivered to 1st and 72nd Brigades of Slovenian Army, 4000 more rifles are to be delivered over next 18 months.

A French Operational Mentor and Liaison Team soldier provides security with his Famas during a patrol, Nov. 6, 2008. The French are helping the International Security Assistance Force in assisting the Afghan government in extending and exercising its authority and influence across the country, creating the conditions for stabilization and reconstruction. (Photographer: Cpl. John Rafoss : International Security Assistance Force HQ Public Affairs)

When back in the late 1960s the Austrian firm of Steyr produced their innovative Armee Universal Gewehr, more commonly known as the AUG, it appeared to mark a significant change in infantry small arms design.

Like the American M16 then in widespread service it used plastics and alloys to reduce weight and it fired a 5.56mm NATO round, however it was the bullpup design that appeared to distinguish it from more conventional rifles.

On a rifle the bullpup configuration places the working parts and magazine behind the trigger. This means that that a longer barrel can be accommodated in a more compact weapon, this not only reduces weight but makes the weapon more handy in confined spaces. Ballistically longer barrels also increase muzzle velocity producing flatter trajectories and consequently a longer effective range.

The AUG however was not the first bullpup weapon to be developed about this time – the French FAMAS and British EM-2 used the system. What would mark the Austrian rifle out was its enormous commercial success – not only was it adopted by the Austrian Army in 1977 but went on to be chosen by the armed forces of Australia, New Zealand, Oman, Malaysia, Saudi Arabia and Ireland. It was adopted by security forces around the world and remarkably for a nation proud of its gun smithing heritage by the United States for service with the US Coast Guard.

It is still widely used and the latest version of the Steyr AUG, the A3 has no built in optical sight but in its place four Picatinny type rails on top, at the side and under the barrel that can accommodate night vision equipment or optical sights, flash lights, laser aiming devices or a Steyr 40mm grenade launcher.

Bullpup has now found widespread acceptance and perhaps the most significant user is the Chinese Peoples' Liberation Army (PLA) who were first seen with the QBZ-95 rifle in 1977

Bullpup has now found widespread acceptance and perhaps the most significant user is the Chinese Peoples' Liberation Army (PLA) who were first seen with the QBZ-95 rifle in 1977 when the PLA entered Hong Kong

following its hand over to China. The rifle fires a 5.8x42mm round from a 30 round magazine and has a cyclic rate of 650 rounds a minute (rpm). It weighs 3.4 kg unloaded and its 520mm barrel is fitted into a 760mm long weapon. However since the ejection port is on the right it cannot be fired from the left shoulder.

The Australians are still wedded to the bullpup concept with their Advanced Infantry Combat Weapon (AICW). It is a modular design that has a basic 5.56mm rifle or carbine onto which a 40mm grenade launcher (GL) can be mounted. The electronic sights for both rifle and GL have a built in laser range finder and digital compass and therefore be used as a reconnaissance aid. The AICW was first demonstrated in 2005 and trials are underway with the 30mm GL. It fires from a 30 round magazine at a cyclic rate of 650 rpm. The GL has a three round capacity and the soldier has simply to switch the safety catch from "rifle" or "safe" to "grenade" and pull the trigger to fire the grenades.

The Belgian FN F2000 is another 5.56mm bullpup design that has been adopted by Belgian Army Special Forces and the Armed Forces of Slovenia. It can be configured as an assault rifle or with the FN designed underslung EGLM 40mm grenade launcher. The advantages of the bullpup design can be seen in the barrel length compared to that of the weapon – a 400m barrel is fitted into a 694 mm long rifle. One of the attractive design features is the ejection system that projects the empty cases to the right, but well forward near the muzzle and at a safe distance from the shooter's face.

The Ukraine keen to prove its complete independence from Moscow has developed the Vepr -Wild Boar – assault rifle. It is a 5.45mm weapon the existence of which became public in 2003. It is not a particular sophisticated design being effectively an AK-47 reconfigured as a bullpup. As such it is rather clumsy, weighing 3.45 kg empty and with an overall length of 702mm. It is not clear if national pride will see the Vepr adopted by the Ukrainian Armed Forces.

This year the latest bullpup design to emerge was the South Korean Agency for Defense Development (ADD) and Daewoo K11 dual-calibre air burst weapon shown to the public at an international defence trade show. While it look clumsy, unloaded the sophisticated weapon weighs only 6.1kg with its optics and battery fitted. The K11 has three distinct components the 20mm five round grenade launcher, a 5.56mm automatic rifle and an electronic fire control unit. While the magazine for the rifle is forward of the trigger group, the grenade magazine is to the rear. The safety catch can be switched from single shot, three rounds bursts for the rifle or to a grenade launch position. The fire control unit has a laser range finder, ballistic computer and day (optical) or night (infra-red) sight. The fire control unit programmes the grenades to burst at maximum lethality depending on the range and nature of the target.

A weapon is only as good as the soldier who is using it. Weapon handling training and marksmanship in challenging conditions are essential if soldiers are to survive and fight

While all these weapons fire ammunition that ranges from 5.45mm calibre through 5.56mm to a "big" 5.8mm, one of the tactical lessons to come out of operations in Afghanistan is that fire fights and contacts can be at ranges where these smaller calibres are less effective. The NATO 7.62mm round with its longer range is finding favour again not only for snipers.

Reflecting this Heckler & Koch of Germany have produced the HK-417 a 7.62 x 51 mm calibre rifle. Externally the HK-417 has a number of features like the grip and telescopic butt that resemble the US M16. However internally it has H & K's gas operated piston and a barrel change system that allows the weapon to configured with short barrels for close combat operations or longer for sniping.

It is however an axiom of war that a weapon is only as good as the soldier who is using it. Weapon handling training and marksmanship in challenging conditions are essential if soldiers are to survive and fight – however modern or futuristic the weapon they may be carrying.

Davina White Account Executive
G3 DEFENCE

HK – 417 Photo courtesy Heckler Koch

Jamie the Springer Spaniel Sniffer Dog

The Charity uk4u-Thanks (www.uk4u.org) sends over 20,000 Christmas Boxes to British Forces on operations overseas on Christmas Day each year.

Just before Christmas 2008 Allan Sims, one of the Charity Trustees, received at his home in West Chiltington, Sussex a shoebox sized parcel addressed to Jamie the Springer Spaniel Sniffer Dog – somewhere in Afghanistan. The sender had put his name and address John Evans, Abergele .

Although the Charity does not send boxes which have been supplied by the general public, Allan (being a dog lover) decided that he would do his best to trace this mystery dog. In his work with the Charity Allan gets many 'phone calls from people returning from Afghanistan who want to say 'thank you' for the boxes they have received from the Charity. Each was asked if they had any knowledge of the whereabouts of this dog. The answers were never just right – several sniffer dogs were known, most with different names and one called Jamie who wasn't a Springer Spaniel.

The task seemed impossible until over 2 months later, when an RAF Group Captain sent an email to Allan saying he had found the dog at last and would forward details of the name and address of the handler, a Lance Corporal.

Allan decided to find the telephone number of John Evans in Abergele and tell him the great news expecting the man to be as thrilled as he was. Allan's wife, knowing all the efforts which had been made, wanted the 'phone on loudspeaker so that she could hear his reaction.

The 'phone rang, a woman answered and Allan asked to speak to John. There was silence! Allan asked again and heard a sound like a stifled sob before the woman enquired 'What did you want to speak to John about?' Allan explained about the parcel addressed to the Springer Spaniel and was devastated to be told 'I'm sorry but John is dead'.

After a short period of utter confusion and bewilderment, the woman, Barbara – John's widow,

became composed and spent the next 20 minutes recounting the story of sending the Box.

A few days before Christmas 2008, a story was relayed on BBC radio about a Springer Spaniel sniffer dog called Jamie who had been sent to Afghanistan to assist British troops in detecting explosives. The story stated that Jamie had gone on his heroic mission without any toys – not so much as a tennis ball to play with.

John Evans, a member of the Abergele branch of the Royal British Legion, listened to this programme at home in whilst suffering from pneumonia. Being a dog lover and seeing all the toys his own dogs had, he was so moved by the story that, in spite of his dreadful condition, he asked his wife, Barbara, to put together a box of toys and send them to relieve the dog's plight.

Barbara duly made up a box of toys but had no idea where to send them. She had heard of a charity which had sent 24,500 Christmas Boxes to the troops and searched the internet to find it and discovered the address www.uk4u.org .

Barbara then got John to put his name and his old RAF service number on the box and addressed it to 'Jamie, the Springer Spaniel sniffer dog – somewhere in Afghanistan c/o uk4u-Thanks West Chiltington RH20 2JY'. A short while later John passed away, having first made sure that the parcel had been sent.

The Box arrived at the home of Allan Sims and the rest of the story you now know.

When the 'phone conversation ended, Allan turned to his wife who was in floods of tears, as he was himself at this unbelievable and moving story.

The Box was then sent to Afghanistan where it was received by Jim, the handler, and unwrapped by Jamie who proceeded to have fun with his new box of goodies.

Several photographs are available and are being printed courtesy of the Ministry of Defence and presented to Barbara who will treasure them as precious memories of her late husband, his love of animals and the granting of his dying wish courtesy of the Charity uk4u-Thanks.

The Charity needs to raise over £350,000 each year to send 24,500 Christmas Boxes. Donations may be made via the website www.uk4u.org or by cheque to uk4u, The Old Granary, East St, West Chiltington RH20 2JY.

A 'Heads Up' on protection The rise of the protected weapon station

A Royal Marine mans the Plattmount MR550 Mk1 PWS in Afghanistan

As the Royal Marines BvS10 VIKING project leader for seven years and as the first commander of the Royal Marines Armoured Support Company in Afghanistan, Maj (Rtd) Jez Hermer extols the virtues of the simple but highly effective Protected Weapon Station concept.

Since vehicles first appeared on the battlefield soldiers, designers and engineers have sought ways to integrate standard infantry weapons onto vehicles in a bid to afford the vehicle and its crew a degree of self protection whilst offering a limited offensive capability.

Notwithstanding armoured vehicles, which have generally maintained an ability to mount infantry type weapons, a closer look at the evolution of combat support vehicles in particular over the past century reveals periods where the fashion to integrate weapon systems has waxed and waned. Periods of high intensity conflict tend to cause each new generation of soldiers and commanders to examine the problem afresh, whilst the intervening years characteristically see the trend to mount weapon systems fall away as lessons are forgotten and budgets are squeezed. The Cold War period is a good example of this, where very little if any real thought was given to integrating weapons systems onto logistic and combat support vehicles; a hole in the roof and a GPMG on a bipod being the stock answer to top cover protection for

a four ton truck, whilst Land Rovers, DROPS vehicles and any number of other platforms had no real integrated weapon mounting capability, save, the hole in the roof solution.

Each new period of conflict generates a myriad new ideas and solutions to the age-old problem of successfully integrating light and medium weapons, principally machine guns, onto vehicles. The usual suspects always reappear first in the form of the venerable 'pintle' mount, a cheap, easily manufactured and fairly idiot-proof solution to mounting a machine gun on the roof or sides of a vehicle which requires minimal training and maintenance. The major problems with the pintle mount and its various simple relatives are twofold, namely that the design limits the firer's arc of fire due to his fixed position and the simple pintle mechanism only allows the weapon a limited traverse and elevation in relation to the firer's fixed position.

Various solutions have appeared and disappeared over the years, with very few ever gaining a permanent foothold within the UK or NATO inventory. Some innovative solutions did take root, such as the Danish Aerospace DISA Mount (which allows for a full 360 degree arc of fire from a fixed firer's position) which found its way onto SAXON and more recently onto the Royal Marines BvS10 VIKING, only to be removed from the latter in Afghanistan due to the exposure of the firer to hostile fire and fragmentation.

Indeed the most recent periods of high intensity conflict, namely Afghanistan and Iraq have, once again, forced the UK MOD to look closely at the matter of weapon integration onto vehicles, only this time, more than ever before, the need to ensure that the gunner is adequately protected has become a major part of the equation.

The 'hole in the roof' solution as seen on various logistic platforms and vehicles such as SNATCH along with the simple pintle mount and even the DISA swing mount have proved inadequate in terms of firer's protection and thus a raft of new solutions have emerged.

A Royal Marine of the Armoured Support Group mans a Plattmount MR550 Mk1 with GPMG. Afghanistan.

Periods of high intensity conflict tend to cause each new generation of soldiers and commanders to examine the problem afresh,whilst the intervening years characteristically see the trend to mount weapon systems fall away as lessons are forgotten and budgets are squeezed.

Remote Weapons Stations – Technology versus Instinct

The past ten years have seen a twin track approach to solving the problem of affording vehicles adequate self protection whilst simultaneously protecting the crew and providing a degree of offensive capability. Technology has of course played a key role as witnessed with the emergence of the Remote Weapon Station (RWS). The ability to mount weapons onto a vehicle with an integrated multi-spectral ISTAR capability which can be operated from under armour has proved extremely popular over the past few years. Advances in technology have seen stabilisation, image intensification, thermal imagery, laser range finders and acoustic sensors all being integrated in modular form to the basic RWS concept.

However, the RWS has not proved to be the all conquering panacea that many thought it would be. The Achilles heel of the RWS is the lack of real time, organic, multi sensory, situational awareness which professional vehicle crews and commanders need on the battlefield. No technology can replace the Mk1 eyeball, the nose and the ear which are, when integrated onto a professional soldier, without doubt the most important and effective sensors on the battlefield. Shut down inside an armoured vehicle, looking at a screen slaved to a weapon and optics which are often not aligned with the direction of travel of the vehicle, with a narrow 60 degrees field of view and with no olfactory or aural sensory capability, it is easy to become disorientated and to miss huge amounts of vitally important sensory information which allow the crewman, soldier or commander to

Technology has of course played a key role as witnessed with the emergence of the Remote Weapon Station (RWS). The ability to mount weapons onto a vehicle with an integrated multi-spectral ISTAR capability which can be operated from under armour has proved extremely popular over the past few years.

make informed decisions.

It is a professional soldier's natural instinct to travel and fight, where possible 'heads-up' i.e. with the head and shoulders out of the vehicle. This is not only the author's personal experience but the widely held view of many of the vehicle crews operating on the battlefields of Afghanistan today.

The 'hole in the roof' solution as seen on various logistic platforms and vehicles such as SNATCH along with the simple pintle mount and even the DISA swing mount have proved inadequate in terms of firer's protection and thus a raft of new solutions have emerged.

It is commonplace to see a vehicle with an integrated, hi-tech and highly expensive RWS system fitted – with the vehicle commander travelling 'heads up' – even when the RWS is merrily firing away over his head! This defeats one of the main objectives of the RWS, namely to afford the crew protection. Moreover, with one notable exception, the RWS requires the vehicle crew to carry out all weapon maintenance and drills (ammunition changing / loading, barrel changing, stoppage drills etc) from outside the protective armour of the vehicle, once again, defeating the one of the basic driving principles of the system as the crew are exposed whilst managing the weapon system.

Protected Weapons Station – Instinct and Engineering in Harmony

The alternative solution to the RWS is a system which allows the firer to operate 'heads up' and to fire the mounted weapon manually, whilst sitting inside a protected 'shell'. This way the soldier maintains excellent situational awareness, retains his organic sensory capability, can operate and maintain his weapon system in relative safety whilst retaining the ability to liaise with dismounts and civilians as he is outside the main armoured shell of the vehicle.

The generic term now given to an integrated weapon mount which affords the firer a degree of protection is the Protected Weapon Station or PWS. The re-emergence and recent development of this type of solution has been driven by (amongst other things) the need to protect the firer whilst affording maximum situational awareness (SA) and whilst simultaneously presenting a human face to the civilian populous – an all important aspect of hearts and minds in an asymmetric, counter insurgency conflict and something which the Remote Weapon Station cannot achieve.

The evolution of the PWS concept has also been driven by the usual constraints, principally cost of procurement, ease of maintenance and through life support cost. In respect of all of these the PWS offers a highly effective and relatively economical solution.

The Requirement

There are essentially seven key requirements for a successful integrated PWS:

The mount must be stable enough to ensure weapon accuracy out to the maximum effective weapon ranges.

The mount must be agile enough to cover a full 360 degree arc, rapidly and across all terrains and in all vehicle attitudes.

> continued on page 54

Accuracy – Protection – Flexibility – Reliability – Innovation

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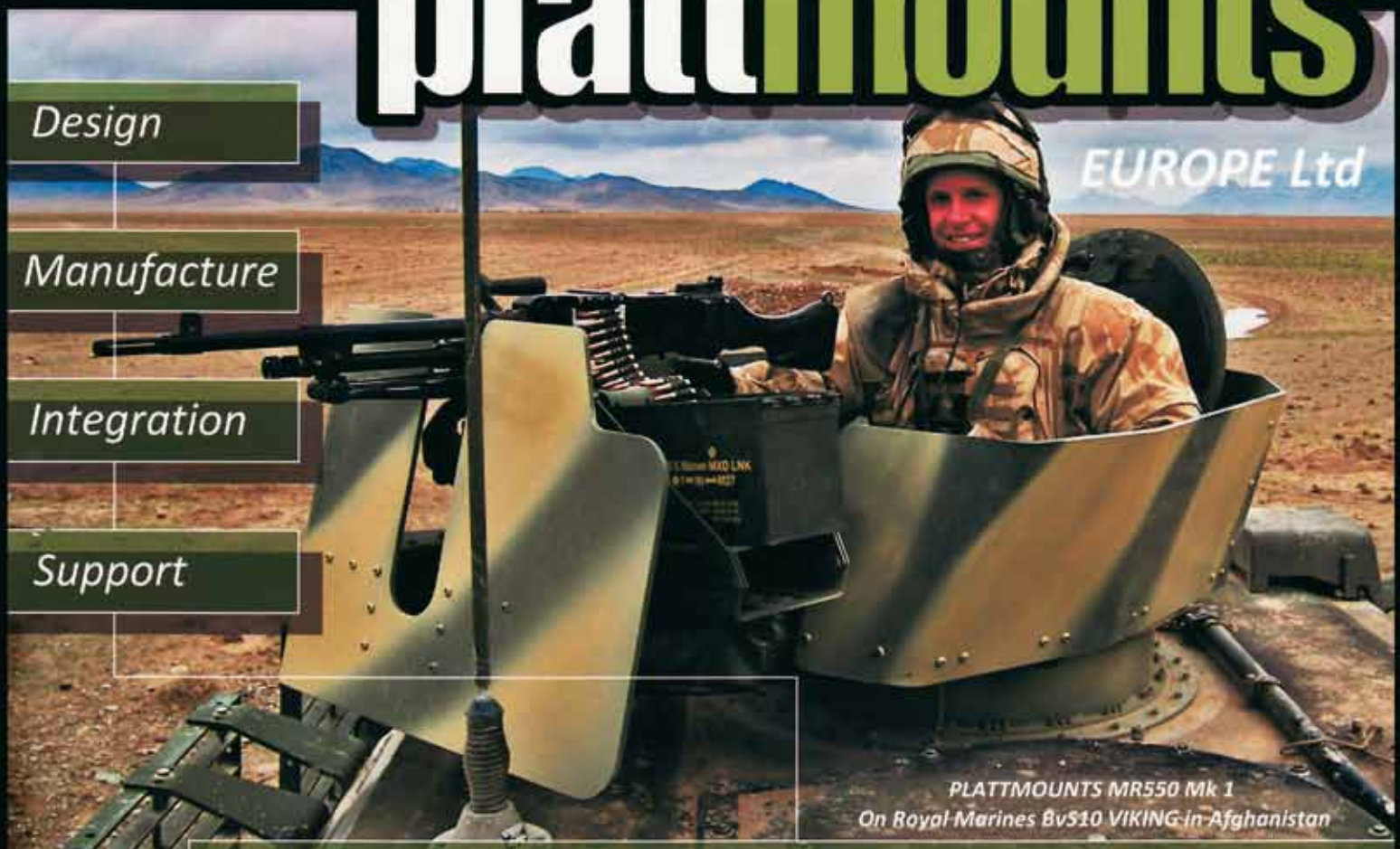

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The generic term now given to an integrated weapon mount which affords the firer a degree of protection is the Protected Weapon Station or PWS

The mount must afford the firer a degree of protection in line with the overall protection of the vehicle upon which it is mounted.

The system should be easily maintained by the vehicle crew with on-board tools and minimal training.

The mount must be light enough so as to have minimal impact upon Gross Vehicle Weight and centre of gravity

The mount must be flexible enough to accept a range of weapon systems without modification.

The system training should be minimal.

Improvements and Advances

In general, most PWSs are based upon a main, heavy-duty traverse ring bearing upon which is mounted a protective shield system and a weapon mounting system. The more advanced PWS systems, such as the Plattmounts MR range (integrated onto VIKING, BULLDOG and WARTHOG) include a manual gearbox for rapid traverse, ballistic glass for improved SA, elevation and super elevation (up to 70 degrees above the horizontal) and depression (up to -15 degrees), integrated recoil buffers, ammunition stowage and various additional ancillaries. More recently the addition of modular, composite appliqué armours has served to offer the user flexible levels of protection dependent upon threat and weight constraints of the vehicle platform.

Kongsberg Protector Remote Weapon Station

Plattmounts is now supplying PWS systems with overhead protection, electronic actuated traverse and elevation, integrated Image Intensifier systems, TI and laser range finders as standard modular options for the customer. The greatest innovation is in the development of the PLATT 50/50 PWS – so called because it is 50% PWS and 50% RWS. The Platt 50/50 boasts modular shields, a ring bearing traverse system and flexible weapon mounting options, electrical powered traverse and elevation and a range of sighting systems and sensors; however the greatest innovation is that, in extremis – the firer can now move inside the vehicle and operate the mount remotely should he so choose, thus creating a combined RWS / PWS solution that offers the best of both worlds.

Platt's range of PWS and non protected ring and swing mounts offer complete weapons flexibility, allowing the commander greater choice in weapon mix as dictated by the operation in hand. The full spectrum of 5.56mm and 7.62mm weapons on single or twin mounts, .50calibre HMG and 40MM HV automatic grenade launcher systems can all be fired from a standard Platt PWS and ring mount system.

All in all – the future of the PWS as the primary light and medium weapon mounting system of choice for a range of combat vehicles has never looked brighter.

Major Jez Hermer MBE RM (Rtd)

BVS 10 Viking with MR550 Gun shield.

Photograph by:
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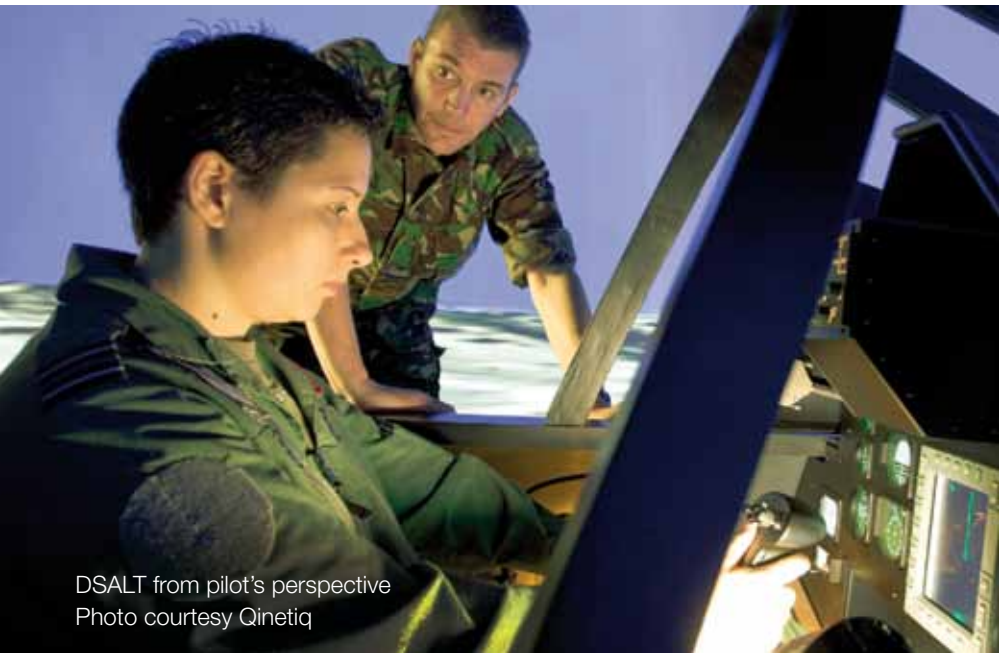
Simulated training takes another big step into the real world



DSALT from pilot's perspective
Photo courtesy Qinetiq

RAF pilots will train alongside British Army forward air controllers and artillery personnel prior to deployment to the front line thanks to a contract just awarded by the MOD that covers the provision and running of a bespoke multi-million pound training facility at RAF Waddington.

The Distributed Synthetic Air Land Training (DSALT) contract is worth £26m over the next four years. Under the contract sponsored by the RAF, QinetiQ as the project lead, and Boeing will together provide around 44 weeks access to specialist synthetic training facilities each year. The primary users will be HQ level fire planning cells and fire support teams, who act as the eyes and ears on the front line for artillery batteries plus the RAF pilots that will be operating alongside them in the region and engaged in ground attack missions. By working together they will safely experience the complexities of controlling aircraft, artillery and other assets, all in fast-moving situations.

"With recent technological advancements we are now able to deliver synthetic training that realistically simulates actual engagement situations and until now troops probably only experienced many of these only when they reached the front line," explained Jon Saltmarsh, QinetiQ's programme director for the project. "This helps ensure our forces are better trained, minimising the risks both to them and civilians in complex urban environments like Iraq and Afghanistan."

"A real benefit of this form of training is that ground forces gain an understanding of the pilot's perspective of a mission and vice versa," he added. "This means that communications between all parties are improved, operations run more smoothly and there's less chance of error."

QinetiQ is responsible for ensuring the facility meets technical specification and delivering the ongoing customer requirements. Initially this involves ruggedising a capability demonstrator that has already successfully proven the concept to the MOD into a robust training system. Boeing will be responsible for the day-to-day operation of the training systems used for planning and for delivery of the post-exercise review, while the RAF supported by Inzpire, (acting as consultants to the UK military), will provide personnel with recent in-theatre experience to take on various key roles within the exercises.

"Boeing and QinetiQ continue to develop an appropriate, robust, rugged and reliable training facility that will meet UK forces' needs for integrated land air training now and into the future," concluded George German, DSALT programme manager for Boeing.

The DSALT facility is a key element of the Air Battlespace Training Centre, a partnership between RAF and industry to improve the training of UK frontline forces. The DSALT facility can also be linked to a variety of other simulated or live air, land or maritime assets to further enhance the training. The possibility also exists to develop deployed training facilities elsewhere in the UK or overseas, thereby increasing the value and availability of this specialised training.

For more information please contact Douglas Millard, Press Officer dmillard@qinetiq.com 01252 394611

Ground base DSALT training
Photo courtesy Qinetiq

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Published bi-monthly G3 Defence is an informative read not only to users and buyers but to all industry who serve to provide the best equipment to the UK armed forces.

How?

By utilising interviews, articles and commentary from the very key people involved at all ends of the spectrum G3 Defence can provide useful up-to-date information to those in need. Industry experts will provide knowledge of the latest products and technologies, Users providing feedback necessary to improve and ensure the equipment they operate is of use and analysts to give an overview as to the methods, means and needs.

Distribution

The magazine is in hard format for distribution at shows/exhibitions, and those on operations via DSDA, or involved in procurement and ultimately everyone responsible for making decisions. The magazine is also distributed in a digital format and is accessible by the internet. It offers benefits to readers, contributors and advertisers by enabling a product to be showcased using video, or a company's advertisement to be enhanced with a piece of music, jingle or narration.

Breakdown

Ministers, Chiefs of Staff, Senior Officials, IPTS, Defence Agencies, Industry.
Royal Air Force – All operational Squadrons.
Royal Navy – All vessels on operations including the Royal Marines.
British Army – All divisional and brigade headquarters and regiments on operations.

Editorial

The editorial comes from a variety of sources including interviews with key people, articles written and submitted externally, articles produced internally and analysis from a wide range of specialists.
If you have any queries relating to editorial please contact the editor at editor@g3defence.co.uk

Advertising.

The magazine is standard A4 (210mm X 297mm) and full colour throughout
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NEWS NEWS NEWS

The RAF is in talks to finalise the purchase of a third batch of Eurofighter Typhoon aircraft after Prime Minister Gordon Brown's announcement, Thursday 14 May 2009, that the UK will move ahead with its international partners with the final stages of procuring the multi-role combat aircraft.

The NATO Eurofighter Tornado Management Agency (NETMA) will continue negotiations with industry with a view to getting the best possible deal for the partner nations (UK, Germany, Italy and Spain). Negotiations will address both procurement and support costs.

The Typhoon provides the RAF with a highly capable and extremely agile multi-role combat aircraft, capable of being deployed in the full spectrum of air operations, such as air policing, peace support, and high intensity conflict.

The initial production aircraft will be deployed primarily as air-superiority fighters, but will quickly be equipped with a potent precision ground-attack capability.

The Prime Minister said:

"I am pleased that we are moving forward with this important programme with our partner nations. This will strengthen Britain's defence capability, and will create new jobs in advanced manufacturing that Britain needs to emerge stronger and fitter from this global downturn."

The MOD will now initial the ministerial agreement which the other partner nations (Germany, Italy and Spain) signed on 2 April 2009, and which contains a statement of principles, including the need to achieve significant through-life savings.

The Defence Secretary, John Hutton, said:

"We look forward to receiving an affordable bid from European industry that will allow us to proceed with a programme that will deliver advanced multi-role aircraft to the Royal Air Force and maintain high-technology skills and industrial capability across the UK and Europe.

"Subject to the satisfactory outcome of these negotiations, I hope that we will be in a position to sign a contract later this year."

The contract for the third tranche of Typhoon aircraft will be signed once there is a satisfactory conclusion to negotiations, and each partner nation's approving authority has accepted the terms of agreement.

At peak production, the Typhoon programme will help sustain 5,000 jobs at BAE Systems, 4,000 throughout Rolls-Royce and its supply chain, and up to 16,000 in total in the UK aerospace industry.

Atlas Elektronic buys Qinetiq's Underwater Systems business.

Atlas Elektronik has purchased the underwater systems business of Qinetiq in a deal that more than triples the size of Atlas' employee numbers in the U.K.

German-based Atlas announced May 14 it was paying 23.5 million pounds to acquire the British defense technology company's underwater systems operations based at Winfrith in Dorset.

The U.K. arm of Atlas employs around 100 people at its base in Newport, Wales, supplying equipment ranging from submarine external communications to tow cables and sonar and mine countermeasures sweep systems.

The underwater systems business of Qinetiq will add a further 220 employees currently involved in developing a range of underwater system technologies from hydro-acoustics to sonar and combat management systems.

Qinetiq said it was the first of several small non-core businesses it intends to sell following a management review of its activities in Europe, the Middles East and Africa.

The deal still requires regulatory approval. Atlas, which is jointly owned by EADS and ThyssenKrupp, said it expected clearance later this summer.

MoD announces Bowman to get upgrade

The new upgrades to Bowman will also provide enhanced battle planning tools, a more stable and robust tactical internet, and improved situational awareness.

Bowman's secure radio communications have been used on operations since 2005, together with a basic data capability.

The Bowman system has been developed and integrated by General Dynamics UK into over 13,000 British Army vehicles, together with headquarters, ships, and helicopters.

The Ministry of Defence is also purchasing an additional 3,400 radios in order to meet the demands of current operations and their associated training needs.

The latest planned upgrade, known as BCIP5, will be fielded as a software and hardware upgrade across the Army's vehicle and man-portable radio fleets.

BCIP5 is already rolling out to Royal Navy ships, the Royal Marines, the RAF Regiment and specialist Army signals units.

"Secure, faster communications and simple data exchange is saving lives on the front line."

Quentin Davies MP

Quentin Davies, Minister for Defence Equipment and Support, said:

"Bowman is a step change from the old days of analogue radios and manual code-books. It has been used successfully in Iraq and Afghanistan, where secure, faster communications and simple data exchange is saving lives on the front line.

"Working together with industry through the Bowman prime contractor, General Dynamics UK, means that we are at the vanguard of military communications capability. It allows us to adapt constantly to technological advances and the evolving demands of life on operations."

Bowman CIP (Combat, Infrastructure and Platform) Battlefield Information Systems Application, which has achieved its formal, full-system acceptance, is a spiral programme of incremental development expected to take place over 25-30 years.

A400M wanted but not at any cost

Airbus Military has told the British government it expects the delayed A400M airlifter will make its maiden flight no later than February, the Ministry of Defence reported May 13.

In a response to a recent report on procurement from the Parliament's Defence Committee, the MoD said the delay means the earliest in-service date for the aircraft with the Royal Air Force would be 2014.

"The U.K. remains committed to A400M, but not at any cost," the MoD said in a statement. "We are considering all potential outcomes."

First deliveries of the A400M to lead customer France were originally scheduled this year, but development has been bogged down by a string of setbacks with the aircraft and its turboprop engines.

A seven-nation partnership - Belgium, Britain, France, Germany, Luxembourg, Spain and Turkey - signed a deal with Airbus in 2003 to develop the aircraft. These countries and export customers Malaysia and South Africa have ordered some 192 aircraft.

The partner nations are midway through a three-month moratorium imposed at the end of March as they seek to find a way forward on the program with Airbus in a bid to stop some countries from heading for the exit.

Britain has been touted by some as the most likely nation to cancel the program, turning to the United States to acquire airlifters instead.

The MoD response said it was considering a number of options to close the capability gap resulting from the delay, including "an extension to the life of the C-130K fleet and leasing or procuring additional C-17 and C-130J capacity."

The U.K. Royal Air Force has been looking to bolster its C-17 fleet with another two aircraft regardless of the outcome of the A400M deliberations. The original plan was to buy one aircraft this year and another next year. With the MoD's equipment budget under huge pressure, though, it is unclear whether that plan remains in place.

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