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# EOD Solutions

Explosive and Ordnance Demilitarisation



Explosive and Ordnance Demilitarisation

[www.eodsonline.com](http://www.eodsonline.com)





## Welcome to this edition of the Military Systems & Technology newsletter.

As an established web portal for the International Defence & Aerospace Industry, we strive to provide a comprehensive and detailed listing of Military Equipment Suppliers, Products and Services. This newsletter is designed to keep you up-to-date with latest news and events within the Defence Industry's Governing Bodies, Organisations and Companies.

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# COMPLEX PROBLEMS SIMPLE SOLUTIONS

EOD Solutions Ltd is a company specifically created to undertake ammunition and weapons stockpile destruction. The company employs retired Ammunition Technical Officers and Ammunition Technicians trained at the Army School of Ammunition in the UK to undertake the logistical destruction of ammunition. Understanding how ammunition and weapons function is a prime consideration when dealing with the destruction and reverse engineering of these dangerous items.

EOD Solutions Ltd has undertaken reverse engineering projects where the company teamed with factories in country or other organisations that allowed the work to be undertaken in a safe and secure manner. Environmental issues are now of high importance when disposing of ammunition and EOD Solutions Ltd is working with environmentalists in this area.

## Demilitarisation in Afghanistan

## Transportable Ammunition Destruction System (TRADS)

The installation of the Transportable Ammunition Destruction System (TRADS) at Camp Bastion under contract to DESWpns DGM to destroy small arms ammunition in an environmentally benign manner. The TRADS incinerates up to 45000 rounds per hour depending on the type of ammunition which equates to one ton all up weight of ammunition per hour on a normal working day and was designed





and built by the company in association with Caldo Engineering with whom the company has a long and trusted relationship.

The TRADS (which is built into a forty foot container) comes complete with all infrastructures so that the user can place the system on the ground and within three days have the system working destroying ammunition. The system has wind down legs as well as lifting points that enable the system to be jacked up from the delivery vehicle without the need for a crane or it can be craned if the user requires. This is especially desirable in the present position in Afghanistan where the system is a standalone operation outside the ammunition storage facility in an area where there is no infrastructure. See video EOD Solutions Ltd is currently building a smaller batch type furnace for EOD Technologies in the United States for deployment in Afghanistan in support of US troops in other areas of the province. The picture shows the build nearing completion ready to ship to Afghanistan.



## Explosion Aftermath Clearance

The company is currently working with the International Trust Fund (ITF) undertaking a clearance operation in Gerdec, Albania where four explosions at an ammunition unpacking facility killed 26 people and injured hundreds more.

Over two hundred houses were damaged or had to be demolished. In all a total of 90 acres of land is to be remediated before being returned to the Government of Albania. This is a difficult and demanding process as it is in the centre of a residential area. This limits operations considerably due to the proximity of the local population.

This year will see the conclusion of this task that has made EOD Solutions Ltd well equipped to undertake future operations of this kind. The pictures show the problems and the successes EOD Solutions Ltd has accomplished over the four year clearance process.



## Weapons Destruction

EOD Solutions Ltd has undertaken weapons destruction programmes that reduce the weapons to scrap to prevent use or sale to organisations that lean towards terrorism and criminal activities. So far 175000 have been destroyed in Albania and another 10000 in Senegal by the company. The weapons are destroyed using methods that totally destroy any part of the weapon from being used for its intended purpose.

## Quality, Safety and the Environment

EOD Solutions Ltd has strict safety quality and environmental guidelines that are in line with US and UK governmental regulations. These guidelines are employed irrespective of which country operations are undertaken. Demilitarisation procedures are also allied to the NATO and UK regulations regarding ammunition and weapons safety and disposal.





OTT Armoured Vehicles

# OTT TECHNOLOGIES, NEW AND REFURBISHED ARMoured VEHICLES

OTT Technologies (Pty) Ltd (OTT) is a South African company located outside Pretoria. The company is in operation since 1980. OTT developed over the years from a small company that specialised in the refurbishment of surplus ex-military all terrain vehicles to its current status as a company with acknowledged engineering excellence. The current status of the company is an ISO 9001 certified company that still re-manufactures surplus ex-military all terrain vehicles and also designs and manufactures new wheeled armoured vehicles.

OTT has two main business streams, New

armoured vehicles and Refurbished Vehicles. A secondary business stream is the supply of new and refurbished original spares for Samil trucks, Casspir MPV's, Mamba MPV's, Ratel APC's and older generation Unimog trucks.

## New Armoured and tactical Vehicles

OTT designs, develops and manufactures wheeled armoured vehicles. Our vehicles are used by police, military, peace keeping forces and security companies for the safe transportation of personnel and assets in transit. The current new armoured and tactical vehicle products of OTT are:

### Protector M21 Modular Armoured Vehicle

The Protector MAV is built on a commercial truck driveline. The maximum gross vehicle mass is 13 ton with a 4,3 ton payload. The Protector can be configured as an armoured personnel carrier (APC), assets/cash in transit vehicle, ambulance or command and control vehicle. It is available in 4x2 and 4x4 configuration with Right Hand Drive steering. The basic crew consists of a driver and commander. Up to 10 additional passengers can be carried. Main users are police, security companies and cash in transit operators.

### Protector M22 Light Modular Armoured Vehicle (LMAV)

The M22 LMAV is built on a commercial truck driveline. The maximum gross vehicle mass is 7,5 ton with a 2,4 ton payload. The M22 can be configured as an armoured personnel carrier (APC), assets/cash in transit vehicle, ambulance or command and control vehicle. It is available in 4x2 configuration with Left or Right Hand Drive steering.

The basic crew consists of a driver and commander. Up to 10 additional passengers can be carried seated back-to-back or 9 facing linear with the direction of travel. Main users are police, military, security companies and cash in transit operators.







### Elephant 5000 Riot Control Unit (RCU)

The Elephant 5000 RCU consists of a modular riot control unit mounted on 13,5 or higher GVM commercial 4x2 or 4x4 truck. It has a 5000 litre water tank as well as dye and irritant tanks which can be sprayed on rioting crowds to disperse them. Self protection systems protect the vehicle and crew against fire and close contact by rioters. Steel grids protect the windows against hand thrown objects. The crew consists of a driver and operator.

### Marrua M27 Light Armoured Patrol Vehicle (LAPV)

The Marrua M27 is a light armoured patrol vehicle with a crew of 4. It is built on an Agrale Marrua AM200CD chassis and is supported through the Agrale distributor network. The M27 LAPV is primarily designed as a patrol and general utility vehicle protecting the crew against small arms fire and side blasts from Improvised Explosive Devices (IED's).

It can also be configured as a reconnaissance and surveillance vehicle, tactical command and control vehicle as well as a light cash in transit vehicle.

### Puma M26 Mine and Blast Protected Vehicle (MRAP)

The V-shaped hull Puma M26 4x4 is an armoured personnel carrier (APC) with mine and IED protection. It is built on a commercial truck driveline. The main users are military, police and security companies during peace keeping, homeland security and other asymmetric warfare operations.

Other roles include, high mobility mine protected patrol vehicle, tactical rescue/ambulance, mine protected weapon carrier and mine protected tactical command vehicle.

### Puma M36 Mine and Blast Protected Vehicle (MRAP)

The V-shaped hull Puma M36 4x4 is an

armoured personnel carrier (APC) with mine and IED protection. It is an evolutionary and larger extension of the Puma M26 and is also built on a commercial truck driveline. The main users are military and police during peace keeping, homeland security and other asymmetric warfare operations.

Other roles include, high mobility mine protected patrol vehicle, ambulance, mine protected weapon carrier and mine protected command vehicle.

### Land Cruiser M40 Light Protected Vehicle

The Land Cruiser M40 light protected vehicle is used for Cash in Transit and transportation of security personnel. It is based on the Toyota Land Cruiser Series 79 pick up truck. It carries a crew of 4 (driver plus 3) with a payload of 300kg for assets.

## Refurbished Military Vehicles

OTT also specialises in the re-manufacturing of ex-stock all terrain military and police vehicles and is internationally well known for these high quality vehicles. Customers include the Africa Union, Nepal, various NGO's as well as various African Governments, mining houses and other

private customers. The product list includes Ratel APC's, Samil 20 Hunter SOV, Samil logistic trucks, Casspir mine protected vehicles, and Nyala RG12 police APC's.

### Ratel 6x6 Armoured Personnel Carrier (Refurbished)

The combat proven Ratel 6x6 is known as a robust and reliable vehicle that proved itself during operations in Southern Africa. The APC has a crew of driver plus 8. The Ratel can be fitted with a variety of weapon systems including 90mm gun, 12,7mm machine gun, 14,5mm machine gun, 40mm automatic grenade launcher or even with an anti-tank guided missile in the tank hunter role.

### Samil 20 Hunter Light Strike Vehicle (Refurbished)

The Hunter LSV is based on the proven Samil 20 high mobility truck. It is mainly used by special operations or light strike teams where surprise, situational awareness, fire power and a highly mobile and robust platform are essential for combat survivability. It has a crew of driver, commander and 5 gunners. The weaponry consists of a 12,7mm or 14,5 mm machine gun plus three 7,62mm light machine guns to provide all round fire power. The Hunter is also available in a Patrol variant without machine gun mountings for those customers who do not require the lethal fire power of the LSV.

### Samil 20 All Wheel Drive High Mobility Truck (Refurbished)

The Samil 20 is known for its extreme off-road mobility, robustness and reliability. It has a gross vehicle mass of 7700 kg and can carry a load of 2690 kg. The Samil 20 is available as personnel carrier, light cargo vehicle, field ambulance, light workshop vehicle, light fire tender, etc. It is a highly versatile platform.







### **Samil 50 All Wheel Drive Tactical Truck (Refurbished)**

The proven Samil 50 is known for its excellent mobility, robustness and reliability. It has a gross vehicle mass of 12400kg and an off-road payload of 6000kg making it the ideal tactical logistic truck. It can be used as a personnel carrier, cargo vehicle, fuel or water truck, workshop and maintenance vehicle, fire tender, etc.

### **Samil 100 6x6 Logistic Truck (Refurbished)**

The Samil 100 is like all the other Samil trucks also known for its excellent mobility, robustness and reliability. With a gross vehicle mass of 21 ton and a payload of 12 ton it has various logistic applications in tough environmental and operational conditions.

## **Spare Parts**

OTT has large stocks of new and refurbished spare parts for Ratel, Samil trucks, Casspir MPV's, Buffel MPV's, Mamba 4x4 MPV's and Unimog 416 trucks.

OTT Technologies Customer Profile - OTT has supplied quality remanufactured and new vehicles to various discerning customers including:

- **The Governments of Zambia and Malawi mainly for use in United Nations Peace Keeping Operations.**
- **The Africa Union for use by member states in AU Peace Keeping Operations.**
- **Individual African countries.**
- **The United States of America for use in Afghanistan and Iraq.**
- **The Government of Nepal for use in United Nations Peace Keeping Operations.**
- **Various Non-Governmental Organisations (NGO's) mainly for use in Africa.**



- **Anglo American Corporation.**
- **De Beers Diamond mines.**
- **Various large South African mining houses.**
- **Protector Modular Armoured Vehicles and M22 Light Modular Armoured Vehicles to SBV Services a South African company that transports large amounts of money in high risk areas.**
- **M22 Light Modular Armoured Vehicles to cash in transit operators in Nigeria.**





# Guartel Technologies

Guartel Technologies Ltd a market leader in the manufacture and design of specialist detectors for use in Counter IED, Search, EOD & Mine Clearance operations are again exhibiting at DSEi. Guartel Technologies will be showcasing it's range of products on Stand N6-300.

New Products. Guartel are proud to announce the release of a new metal detecting product GRIPE, this specialist detector is based upon Guartel's well known MD4 Metal Detector. GRIPE is a telescopic, lightweight detector utilising carbon fibre composites and state of the art digital processing detection technology. During the design process Guartel worked closely with the user



community to ensure the product meets the demanding specifications expected of equipment that will be utilised by CIED Searchers and Special Forces. GRIPE will be released onto the market in early 2014.

## Strategic Partnership – Guartel Technologies Ltd and Adams Electronics Ltd.

Guartel Technologies and Adams Electronics both respected UK manufacturers of metal detection products for the military, law enforcement and security sectors are pleased to announce their strategic partnership for the design, development and manufacture of a new compact hand worn detector, Aqua-MITT. The product is scheduled for release during the 2nd quarter of 2014. Both the MD of Adams Electronics Robert Adams and the MD of Guartel Technologies Cliff Wright see the partnership as the beginning of a long relationship to the benefit of both companies and to their respective customer bases, future projects are already on the horizon.

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**PARAMOUNT PANELS (UK)**

Paramount Panels (UK)

# WORLD CLASS DESIGN AND MANUFACTURE OF LIGHTING COMPONENTS

With over 50 years continuance experience in the design and manufacture of lighting components and edge-lit panels, Paramount Panels is a world class leading supplier to the aerospace and defence industries.

**Aircraft Control Panels, Illuminated Control Panels and**

## Integrally Illuminated Light Plates

We specialise in new applications and in support of our customers, offer a free technical consultancy service from concept design and prototypes to the manufacture of production quantities. Flexibility is a key feature of our organisation and, as a result, we are able to produce prototypes, small batches as low as a one off, and larger quantities at very

competitive prices. A further service we are able to offer is the design and manufacture of sub-assemblies which, typically, comprise the lightplate together with its' associated components such as rotary and toggle switches, potentiometers, displays, control knobs and electronic interfaces systems. Where appropriate EMC screening can also be incorporated if required.

Our modern manufacturing and processing facilities include cad/cam modelling, laser engraving and screen-printing, photo-etching and off-set printing. Computerised light balancing and a comprehensive range of photometric devices ensures that compliance with the most demanding specifications.

PPUK technology covers all of the integrally lit panel systems currently employed in military and civil applications and offers a wide choice of light sources including Incandescent, LED and electroluminescent plates. All of our products can be supplied for compliance to the exacting demands for night vision, NVIS and NVG applications.

The main base line specification covering this type of product is SAE-AS7788 (formerly MIL-P-7788) and we offer a full





range of products to cover, typically type III, IV, V, VI and VII and classifications classes from I-R to class I-NVIS.

In many applications integral annunciators are required within our panels, this technology we have become experts in, and we supply secret until lit annunciators, that are sun light readable meeting the requirements of MIL-S-22885. Our technology in this field is second to none, with custom processing techniques that produce a totally flat integration.

Our quality procedures are governed by an extensive range of approvals that include: BS EN ISO 9001:2008 and CAA-EASA Part 21, Subpart G.

## NVIS and Night Vision Lighting, Post Lights, Instrument Lighting Bridges, Pillar Lamps and Lighting Bezels

PPUK is a global leader in the field of NVG compatible lighting and designs and manufactures a range of products, which cover all aspects of this application. These include edge lit control panels (lightplates), Keyboards, Post or Pillar lamps, instrument bezels, switch bezels, cockpit utility lights and general lighting components.

In-house computerised radiospectrometers and light balancing equipment ensures that this range of products is fully compliant with the requirements of the military standard (MIL-STD-3009 & MIL-L-85762) that covers NVIS applications.

## NVIS and NVG Compatible,

## Illuminated Panels, Avionic Panels and Aircraft Key Bezels

With our extremely long relationship with the aerospace industry PPUK have gained the position of being a world leader and a specialist in NVIS lighting applications, and we offer a comprehensive service for night vision compatible illuminated edge lit control panels and assemblies.

Our engineers are always contactable for free advise, and we are well known through industry for our excellent customer service.

Another option and service we offer is the ability to convert standard illuminated panels to a NVIS lighting standard, and if required incorporate indicia changes and refurbish the original panel to a new look standard.

## Keyboard Switch Panel and Illuminated Keyboards

Our designs within this product sector have been proven in many demanding environments and include aerospace, marine and fighting vehicle applications where our technology has met and frequently exceeded our customer's expectations.

Keyboard designs are normally required to be backlit and often specify the inclusion of integral annunciators; where necessary these can be "sun-light readable" and "secret-until-lit". Any of the lighting systems specified in AS 7788 is available for the illumination of keys, panel text and annunciators and, if required, a mixture of light sources can be incorporated in a



single design. For example, incandescent filament lamps and light emitting diodes. We also offer the ability to allow for similar dimming characteristics between LED and incandescent lighting sources within the panel assembly.

The relatively simplicity of our designs ensures a high degree of reliability and offers a variety of switch actions and key options. In most cases, the comprehensive range of injection moulded key caps that we have already tooled will satisfy most requirements and thus a fast low cost turn-round. We can work from our customers finalised drawings and specifications or, alternatively, we are pleased to make available engineering expertise and advise in order to develop the best solution to satisfy the requirement.

## Annunciator and Indicator Display Panels

One of our recent technical innovations has been the introduction of "sun-light

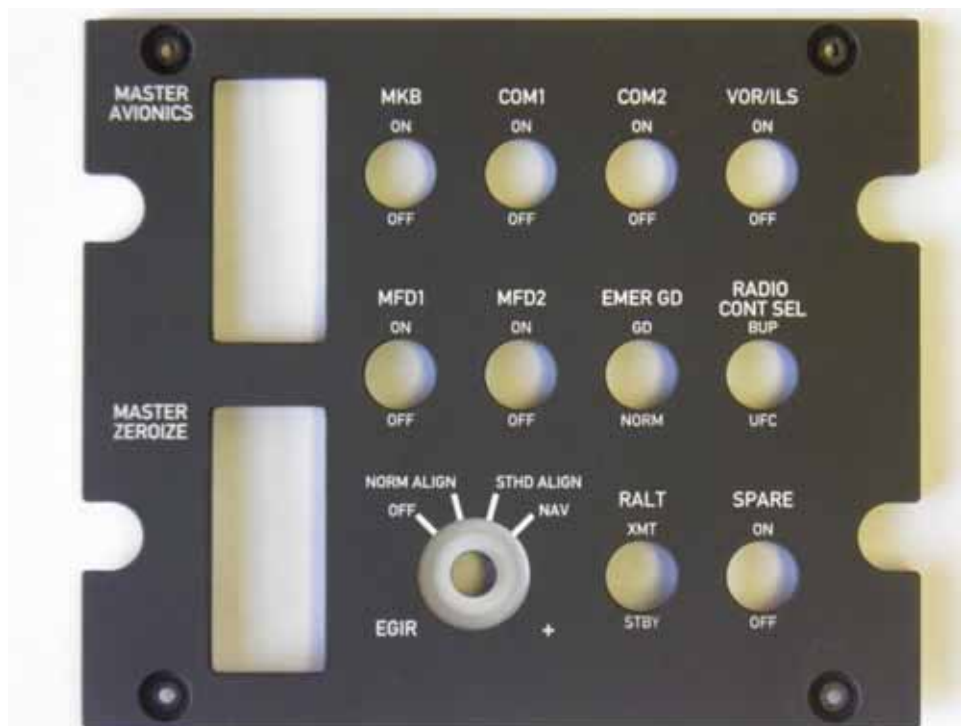




readable secret until-lit annunciators completely housed within the thickness of the lightplate. This system contributes to a totally flush front panel surface and in the un-illuminated condition, the annunciators can be rendered indistinguishable from the surrounding area. Among other applications, this unique integrated flat face panel technology is ideally suited to Advisory displays. Employing appropriate lighting sources and filters, a range of chromaticity requirements, including NVIS as specified in MIL-STD-3009 can be achieved. The construction of our annunciator and indicator display panels is generally based on the mechanical and environmental requirements detailed in AS 7788.

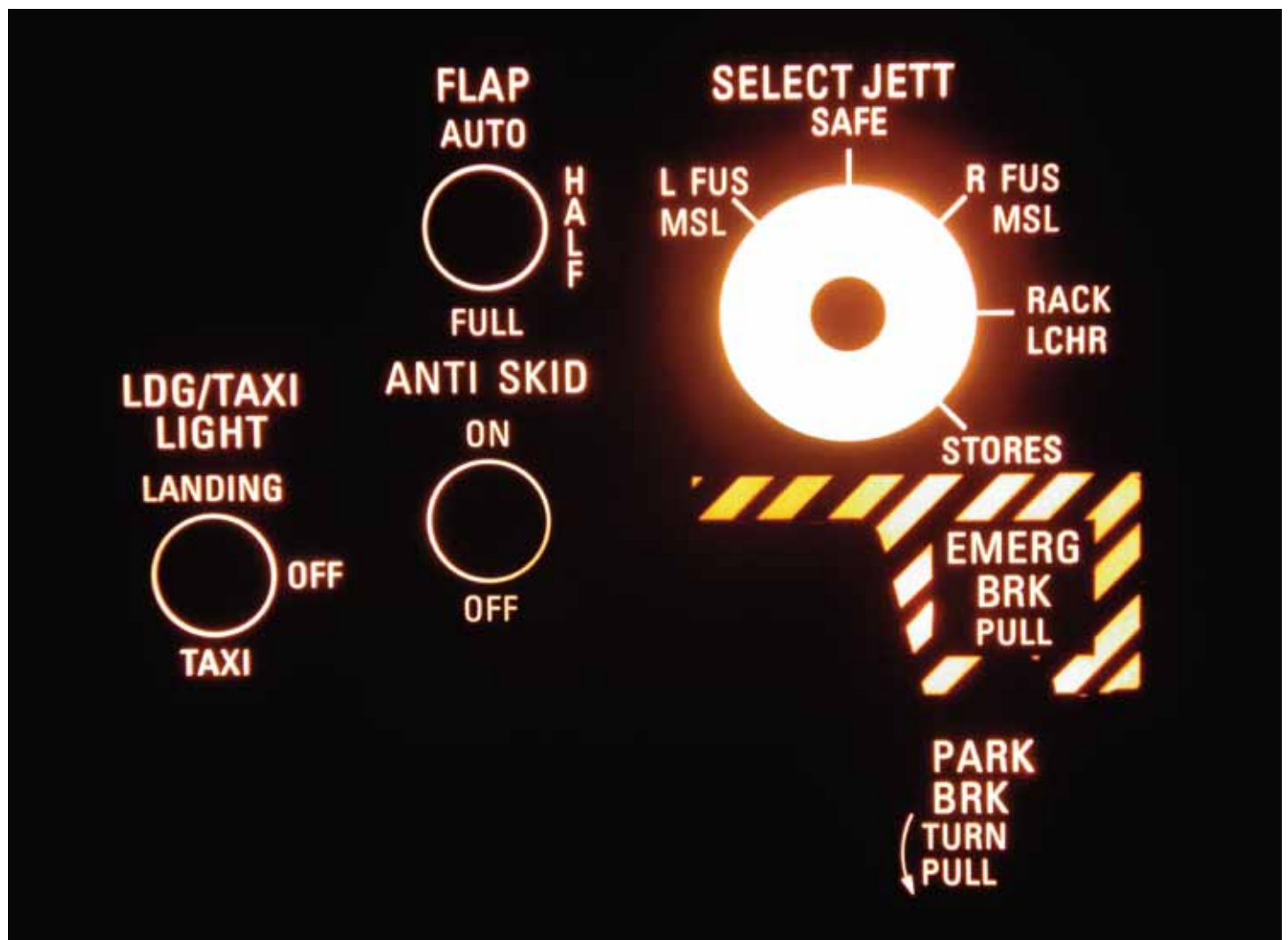
## Transilluminated Control Knobs

Although primarily a manufacture, Paramount Panels (UK) has recently become the European distributor for Electronic Hardware Corporation - probably the world's largest manufacture of control knobs. Thus, we are able to offer an extremely comprehensive range of knobs many of which are held in stock. In



other instances, we are always willing to acquire any necessary stocks and to deliver these in accordance with our customer's schedule. The EHC ranges of control knobs complement the "DEF-STAN" range of knobs that we have manufactured for many years and which remain readily

available. In the event that a requirement for a non standard control knob arises, the combined expertise of EHC and Paramount Panels will ensure a solution at low cost.







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# Another Key US Defense Contract Win for Avon Protection

The US Department of Defense ('DOD') has awarded a \$6.7m sole source contract to Avon Protection for the development of a modified M53 Chemical, Biological, Radiological and Nuclear (CBRN) Protective Face Mask System and associated components.

## (CBRN) Protective Face Mask Systems

The Personal Protective Equipment (PPE) will provide respiratory protection to all US aircrew on the DOD's fleet of Fixed Wing non-fast jet platforms. There is potential for follow on production contract awards of up to \$74m.

The Modified M53 CBRN Mask system is required to provide continuous head-eye-respiratory protection against CBRN and certain Toxic Industrial Chemicals and Materials (TICs/TIMs), and emerging CBRN threats.

### Other requirements:

- Operate in ambient conditions providing uncontaminated breathing air to the user while in flight and during ground operations
- Integrate and interface with specified existing and emerging fixed wing platforms as well as joint aircrew life support equipment, including communications
- Integrate with concurrent acquisition efforts to include but not limited to laser eye protection, night vision equipment, below the neck CBRN protective ensembles and new aircrew flight equipment



Avon's Gary Dunn, VP Business Development and DOD programs for North America said "We have built a solid reputation with the DOD, keeping warfighters safe with our M50 series JSGPM face mask systems. We take pride in providing outstanding quality, comfort and protection. Our record of delivery is why customers return".

Peter Slabbert, Avon's Chief Executive commented: "This contract reaffirms Avon Protection's position as the respiratory protection equipment provider of choice for the US DOD. Our high specification

products have gained widespread support as users experience their superior design and comfort.

"Our depth of capability and development positions Avon Protection as the global market leader of respiratory protection systems technology."

This is an integral part of the DOD's strategy to provide its aircrew community with upgraded CBRN respiratory protection equipment under the JSAM-FW (Joint Service Aircrew Mask- Fixed Wing) program.

# AVON

## PROTECTION





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Supporters



# Law enforcement Make no mistake



In law enforcement, there's no room for error. That's why authorities the world over turn to Dräger. The accuracy and quality of Dräger equipment gives police the reliability they need to protect themselves and the public they serve.

Law Enforcement professionals working in the CBRN arena, or those working in confined space and forensics, rely every single day on Dräger to provide reliable and trustworthy equipment. From one day to the next they may face anything from assailants with spray cans to the contents of unclaimed packages, so police force personnel need tight protection against harm. With that in mind, Dräger produces a range of products which includes breathing apparatus, emergency escape devices and gas tight suits – all of which ensure the safety of law enforcement personnel.

Dräger's alcohol and drugs screening devices, masks, filters and communication systems have helped police identify law breakers, defuse confrontations and bring evidence to court. Over many years, chemical, biological, radioactive and nuclear (CBRN) staff and confined space entry specialists have come to appreciate and rely on Dräger apparatus such as gas tight suits and thermal imaging equipment, thanks to its user-friendly design and reliability. And when it comes to alcohol and drug screening, accuracy and quality control is key to ensuring that the equipment delivers reliable results and stands up in court. That's why with a lot of police forces in the world using Dräger equipment, the company is one of the world's leading manufacturers in this field.

## **Military systems and technologies – Dräger's mission is your safety**

Whether on land, under water or in the air – whenever human breathing is at risk Dräger offers reliable protection. For over a century, Dräger has protected military and civil forces as they face their daily challenges. Through decades of working

with armed forces around the globe, Dräger recognises the highly technical requirements placed on military applications. Its specialists have a high degree of technical and product specific knowledge and are experts in tailored solutions for hazard management.

Today's threatening situations pose unforeseen challenges to military and civil forces. Dangerous situations must be analysed quickly and forces given maximum protection. Dräger provides personal NBC protective equipment and a range of innovative products for the detection of hazardous chemical substances.

## **NBC Protection Systems and Collective Protection Systems (COLPRO)**

Dräger's NBC protection solutions are effective at the forefront of the world and the principle is always the same – contaminated external air is taken in, cleaned by several filter levels and then fed into a protected, airtight inner room, or Toxic Free Area (TFA). Dräger's NBC protective systems are tailored to the needs of military or civil defence clients and their specific applications or the requirements of NATO partners.

## **Personal NBC Protection**

Dräger's personal NBC protection products include full face masks and filters, which used together can protect against NBC risks. Dräger also manufactures protective clothing in designs that meet the strict demands for chemical resistance and mechanical resilience.

## **Hazardous Substance Detection**

Dräger Civil Defence Tests have been designed for the rapid detection of chemical warfare agents in toxic gases and vapours.

## **Diving Technology**

Dräger products in this area have the same requirements: namely, high functionality,

low weight and high reliability under extreme climatic conditions.

## **Breathing Management Technology**

Your naval team can breathe easily, thanks to complete system solutions which helps ensuring a reliable air supply, ambient air regeneration and monitoring of the atmosphere

## **Dräger Service**

All our equipment has been put through its paces so you can be sure that it's as tough and reliable as we say, regardless of frequent transportation, extreme temperatures and difficult terrain. Dräger also offers user and technical training seminars to familiarise personnel with equipment, making sure everything goes smoothly during your mission.

## **Dräger**

Dräger is an international leader in the fields of medical and safety technology. Founded in 1889, the Dräger Group is currently present in more than 190 countries and has approximately 12,000 employees worldwide. It has sales and service subsidiaries in over 40 countries, with development and production facilities based in the UK, Germany, Sweden, South Africa, the USA, Brazil, the Czech Republic and China. Its guiding principle and mission is 'Technology for Life'. Wherever Dräger products are deployed – in military systems and technologies, law enforcement and emergency services, oil and gas mining or general industry – they protect, support and save lives.

For more information about Dräger products and solutions please visit [www.draeger.com](http://www.draeger.com)

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# J&S Franklin with their Flood Protection System, DEFENCELL

“We will respond to the threat of climate change.....”

President Barack Obama, 21st January 2013  
In his second inaugural speech President Obama declared that his administration would work to address climate change; “We will respond to the threat of climate change, knowing that the failure to do so would betray our children and future generations. Some may still deny the overwhelming judgement of science, but none can avoid the devastating impact of raging fires and crippling drought and more powerful storms.”

With many communities in the US still recovering from the flooding effects of Hurricane Sandy in October, 2012 they will be delighted with the President's decision to make Global Warming a key theme of his second term. It is as yet unclear as to what changes will be made, however it has been suggested that “Energy and climate policy are going to be a top priority.”

## DefenCell Flood Wall Units

One company equipped for the challenge, and proven in the US in a flood protection role is J&S Franklin with their Flood Protection System, DEFENCELL

DefenCell has been proven in action, and in thorough testing, to be an effective and easily installed Flood Protection barrier.

In April 2011, the town of Smithland, Kentucky, USA, which is situated at the confluence of the Ohio and Cumberland Rivers had to deal with a record surge in river levels. The Louisville Office of the U.S. Army Corp of Engineers (USACE) requested an emergency installation of a DefenCell Flood Wall system.

Within 24 hours, 3 miles worth of DefenCell Flood Wall units were delivered.



Within an hour of delivery, small teams were able to start placing, connecting and filling the systems. After just two hours, installation was being achieved at a rate of 20+ units per hour, (Equivalent to 22,196 sand bags in the initial three hours after delivery.)

In 34 hours, more than 10,500 linear feet of DefenCell Flood Walls had been installed, over 700 units were filled with more than 4,700 tons of sand, by a willing and enthusiastic but untrained, local workforce. The barrier was more than one mile in length, adding an extra four foot of flood protection height to the Smithland levee.

## And....the DefenCell Flood Wall did successfully contain the floods.

DefenCell has been tested by the USACE ERDC center in Vicksburg MS, and has been proven to significantly outperform sandbags and other barriers though their ability to be installed (and removed) faster, offering less water seepage and to offer better overall endurance.

The DefenCell Flood Wall is a non-metallic geotextile based system, developed initially for ballistic defences in military operations. However its versatility, flexibility and its ability

to contour to uneven ground surface with minimal preparation combined with making angles and curves, being light weight and man portable, and the fact that it can be quickly constructed using local fill, sand and common aggregates, has shown it to be effective in a multitude of other applications, including: Flood protection, ground stabilisation, personnel and perimeter protection, critical infrastructure protection and firing ranges.

In a recent US National Climate Assessment draft report, Kevin Trenberth, National Centre for Atmospheric Research stated: “Certain types of weather events have become more frequent and/or intense, including...in some regions, floods and droughts.” “The incidence of floods has a component related to climate change and heavy rains, which are well established to be increasing in the U.S.”

DefenCell is proven in a flood protection role both in the US and Internationally DefenCell can be seen at any time at DefenCell factories in Maldon Essex in the UK or in Nashville Tennessee in the USA.

# DEFENCELL



# UNPARALLELED GRIP IN ALL CONDITIONS



"All grip, no slip" - MacWet gloves more than live up to their billing, the tactical range is already used by law enforcers and armed forces around the world. Offering a comfortable, breathable feel, the gloves ensure maximum grip consistently. With an extremely high level of sensitivity, they allow for fine adjustment of equipment in the field which can save valuable seconds.

MacWet's unique Aquatec® fabric responds to both moisture and climate change, ensuring maximum grip, sensitivity, feel and comfort at all times. In all weather conditions ranging from intense heat to pouring rain, they are designed to perform at the highest standard. Their unique technology draws moisture away from the hand to the outside of the glove in order to increase grip even further.

## **After testing MacWet gloves on exercise in the Falkland Islands, Lieutenant Corporal Michael McMurtry said that:**

"With weather conditions in the field similar to those of the Brecon Beacons, the MacWets really had their work cut out. From the offset of the trial, I thought these gloves were superb. They are so lightweight and thin that they make tasks such as changing mags and administering yourself in the field simple. Being so fine, however, can often pose the danger of damage to the material under pressure.

But the MacWets do not seem vulnerable to rips and tears, and I found them to be very durable and hardwearing on unforgiving rock and shingle. Being thin means that even if soaked they dry within minutes when placed on a radiator back in camp or even when left on the user's hands on a windy day. Most gloves currently on the market are bulky and uncomfortable, causing a negative impact on your movement. However, the way MacWets' Aquatec® fabric responds to both moisture and climate change means users benefit from maximum grip and comfort at the same time.

All in all, the MacWets are an awesome piece of kit for soldiers who mean business. They come highly recommended."



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GLOVES



[www.macwet.com](http://www.macwet.com)

# Lockheed Martin Tests Turrets Using MOOG Test System

Moog Industrial Group, a part of Moog Inc. (NYSE: MOG.A AND MOG.B), and a leader in providing high-performance test and simulation systems, has delivered a Turret Test System to Lockheed Martin at their facility at Amptill in the UK. Lockheed Martin plans to test turrets for stabilisation and performance on the improved Warrior, as part of the Warrior Capability Sustainment Program and Scout Infantry Fighting Vehicles; General Dynamics UK is the Prime Contractor for the latter. The product developments include fitting and integrating the 40 mm Cased Telescoped Gun in a new modernised turret. This requires optimisation of gun aiming and stability performance during manoeuvres for representing a typical battlefield mission.

## MOOG Test Systems Tank Turret Tester

In the past this type of testing was undertaken on an external remote test track or proving ground where engineers would adjust the gun aiming and stability settings under less than perfect

conditions. Under real test track circumstances, engineers found it difficult to consistently replicate dynamic motion inputs and their work was further limited by weather conditions and the ever-changing terrain.

In order to find a solution to improve this way of testing Lockheed Martin turned to Moog, an expert in test, simulation and motion control. The Turret Test System Moog delivered included a 6 Degrees-of-Freedom (DOF) motion base, control cabinet and the Replication Module of the Moog Integrated Test Suites software.

The Moog Motion Base System delivers the desired dynamic performance with payloads up to 8,000 kg (17500 lb). On the top platform of the motion base, Lockheed Martin can install an actual turret or a remote weapon station. Moog Turret Test Systems can handle payloads up to 24,000 kg (53,000 lb) and meet specific requirements related to particular excursions, velocities or accelerations.

The Moog Replication Software accurately reproduces time history files that were recorded by means of a vehicle with full instrumentation on a traditional test track. This simulation occurs fully in a laboratory, saving time, optimising the testing process and improving the reliability of test results. The iteration

process in the Moog software quickly derives a set of command files that faithfully replicate the desired field responses.

The Moog Test System provides 24/7 testing in a controlled in-house environment, enabling the engineers to tweak and perfect the optimum vehicle set-up for combat readiness, saving the costs of putting a real fully operational vehicle on a test track and working in a totally confidential environment.

Advantages of the Moog Turret Test System include:

- **Develop and test in a laboratory instead of on a remote test track**
- **Speed up the development process**
- **Conduct more cost-effective testing**
- **Accurate playback of the target file (RMS error typically <10%)**
- **100% motion repeatability**
- **User-friendly (2-3 day training)**

Moog is an industry expert in vehicle platform integration and design. Our expertise in electronics, mechanical design, design and integration makes us an ideal partner in new vehicle platform design and manufacturing as well as vehicle upgrade and retrofits.

**MOOG**



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# Oxley Developments Appoints New Maritime Reps For Australia

Peter Cotterill, Managing Director of Oxley Developments of Ulverston, Cumbria UK announced today the appointment of Mather Roach Consulting Pty Ltd to represent them in the maritime business market in Australia and New Zealand.

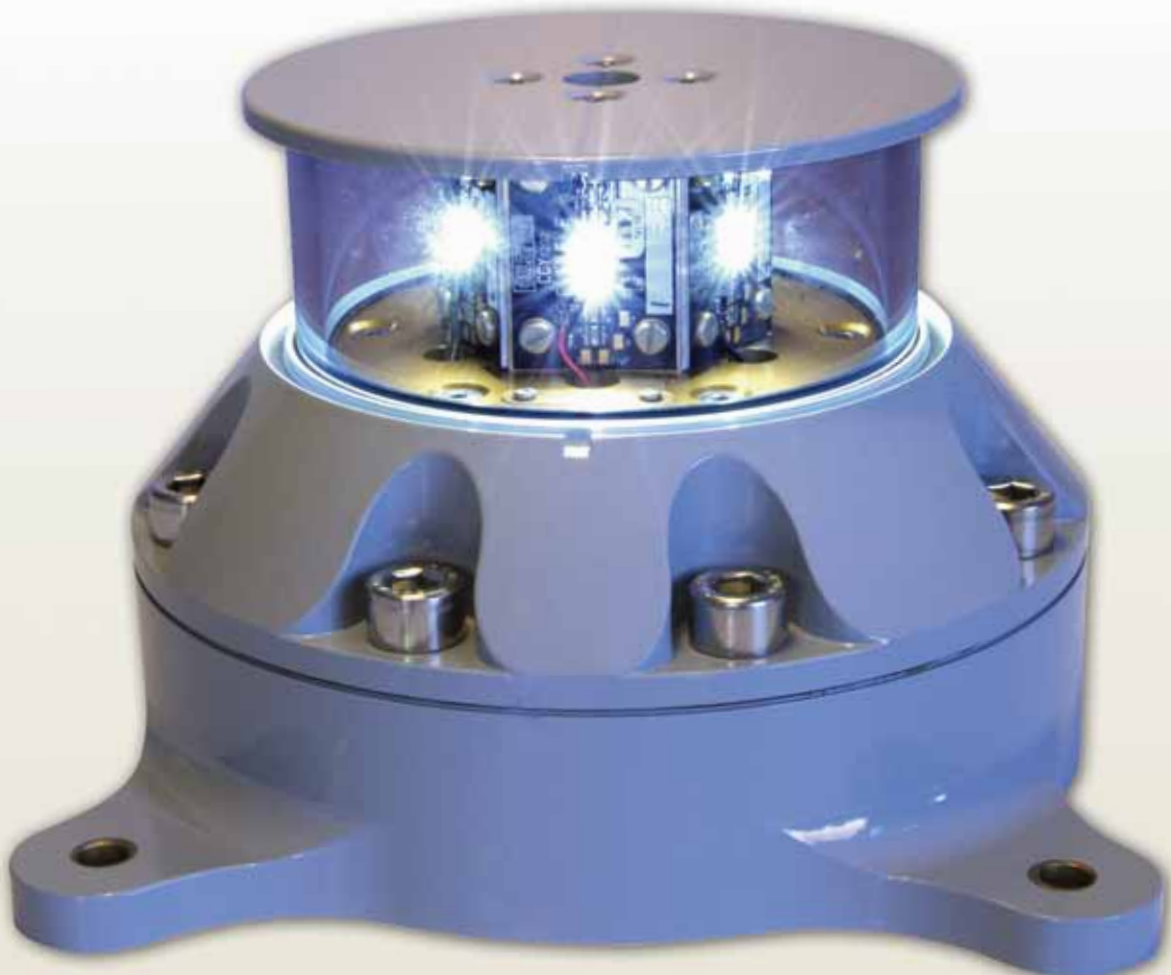
Oxley is a leading designer and manufacturer of LED lighting, night vision solutions and electronic components. Established in 1942, Oxley is an innovator in night vision and LED lighting for naval and marine platforms. Oxley solutions are currently enhancing the performance of ships, fast patrol boats, hovercraft, submarines and naval aircraft across the world.

## **Oxley Marine Navigation Lights**

The latest advancement from Oxley is a range of LED Navigation Lights, specifically developed for vessels over 50 metres. The suite contains a full set of wheel-marked robust and low maintenance lights with options available in both AC and DC variants. The lights are NVG friendly and therefore suitable for use with aircraft flying on night vision goggles, all lights are sealed to IP67 and meet stringent EMC requirements.

Oxley manufactures lighting solutions for all naval requirements, including flight deck, navigation, compartment, bridge, deck head, control rooms and walkways.

Welcoming the news of the appointment, Chris Mather, of Mather Roach Consulting commented: "My business partner CDRE Terence Roach AM RAN rtd and I are delighted to join the Oxley team in offering this outstanding range of LED lighting and night vision solutions to the Royal Australian Navy and to other maritime users."





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RUD are a valued supplier to the MOD providing specialist and standard solutions for the Armed Forces Worldwide. On Land, Sea and Air, RUD Military Technology is meeting the specific needs of the world's defence forces through innovative products from lifting and load securing equipment to snow and traction chains.

RUD's specialty is in providing customers with highly-engineered standard and special solutions when presented with load securing, overhead lifting and traction problems. RUD's standard products and unique solutions are used in a number of military

applications world-wide and continue to perform under the most extreme and challenging conditions.

### Military Lifting Applications

RUD offer a range of lifting applications that suit standard and specialist solutions. Their chain technology enhances system weight, less transport space is needed due to flexible modular systems and most importantly their equipment is easy and safe to use due to the ergonomic design. RUD's robust lifting devices work under harsh conditions up to -60°C meaning work can always be done. All their components are marked with a tracking code (optional available with RFID). Unique to RUD, The advanced metallurgy of the ICE and VIP range of lifting and lashing chains offers the advantages of smaller lighter components with comparably higher lifting capacities.

### Military Lashing Applications

RUD provide first - rate lashing systems for the transport of military equipment on land, sea and air, according to European,



International and special military standards. Their chains are made from the highest technology ensuring that they can operate in the toughest weather conditions whilst offering optimal load stability and security for all applications.

### Snow and Traction Chains

RUD are renowned for their resilient non-skid snow and traction chains specially developed for harsh military applications to guarantee maximum traction on snow, ice and off road. RUD manufacture their non-skid-chains according to the latest civilian and specific military standards. They offer a selection of lightweight snow and traction chains with sturdy grip links that provide essential bite to get through deep, compacted snow and soft ground, an essential accessory for the unpredictable working environment of the Armed Forces.

On land, sea and in the air, RUD Military Technology is meeting the specific needs of the world's defense forces with many high quality products, an innovative approach and unrivalled industry knowledge and experience.

RUD Exhibiting at **DSEI S3-302**

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