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Term of the day

Tank fire control computer

The tank fire control computer is the heart of the tank fire control system. It calculates the corrections that are required to enable the tank weapon system to fire accurately.

The tank fire control computers can be either analogue and digital.

The analogue computer takes continuous physical inputs from various vehicle systems and manipulates them through electrical circuits, to produce a real time solution to the ballistic equation. Because the analogue computer relies on built-in circuitry for its functions, it is not a simple task to "reprogram" it for, say, a new ammunition. Unlike its general purpose digital counterpart, the analogue computer does not have a memory or use software and this means that it is normally designed to carry out a limited number of specific tasks. This lack of a broad programming flexibility is a disadvantage, but the analogue computer does have some positive features:

- Great precision and accuracy can be built into the machine for its specific task,
- The cost can be kept down by restricting the computer to only those components and functions needed for the given application,
- There are no costly software programs to be written or maintained.

Nevertheless, despite these factors, the digital computer is now much preferred because of its greater inherent flexibility and its long term potential outside the weapon control area. In the digital computer, all the input parameters are fed in as, or converted to, binary numbers (composed of zeroes and ones), which can easily be represented by electrical impulses. The binary numbers can then be processed through a series of arithmetic and logical operations, using the program held in the computer memory.

Contracts

GD Awarded $40 M for Abrams Tank Production

General Dynamics Land Systems has been awarded an additional $40 million for the procurement and production of Saudi M1A2 (M1A2S) Abrams tanks for the Kingdom of Saudi Arabia. This modification is part of an existing contract to upgrade the Kingdom of Saudi Arabia's fleet of tanks.

The Foreign Military Sales contract was awarded by the U.S. Army TACOM Life Cycle Management Command on behalf of the Royal Saudi Land Forces.

This contract extends work started in 2008 to update M1A1 and M1A2 tanks to the M1A2S configuration for the Kingdom of Saudi Arabia. The M1A2S conversion increases the efficiency and capability of the tank.

The work will be performed by current employees at the Joint Systems Manufacturing Center in Lima, Ohio, with an estimated completion date of July 31, 2014.

Defence Industry

Saab receives order for weapon locating system Arthur

Defence and security company Saab has received an order for the Arthur weapon locating system amounting to MSEK 128. Deliveries will take place in 2014.

Arthur is a C-band medium-range weapon-locating system that detects and locates enemy artillery fire. The system is used by demanding customers around the world, includingSweden,Norway,Denmark,UK,Greece,Czech Republic,SpainandItaly.

"Saab is a leading provider of weapon locating systems and this order is proof of our customers' confidence in the performance the Arthur system. We have now sold 80 Arthur systems and their availability is well proven from thousands of hours' operation," says Micael Johansson, Head of Saab's business area Electronic Defence Systems.

Applications in the system include counter battery operations, fire control, peace enforcement missions and force protection by suppressing enemy Rockets, Artillery and Mortars (RAM). It utilises a passive phased-array antenna technology for optimised performance. The

technology provides the perfect balance between mobility, range, accuracy, ECCM (Electronic counter-countermeasures), operational availability and operational cost.

The industry's nature is such that depending on circumstances concerning the product and customer, information regarding the customer will not be announced.

Saab serves the global market with world-leading products, services and solutions ranging from military defence to civil security. Saab has operations and employees on all continents and constantly develops, adopts and improves new technology to meet customers' changing needs.

Contracts

Ricardo receives order for a further 76 Foxhound vehicles

Ricardo has announced today that it has received an order from prime contractor General Dynamics Land Systems-Force Protection Europe (GDLS-FPE), for the assembly of 76 additional vehicles, bringing the total Foxhound fleet size ordered to date by the UK Ministry of Defence to 376. Arguably the world's most agile and best-protected vehicle in its weight class, all Foxhounds vehicles are assembled by Ricardo at the purpose-designed production line commissioned in 2011.

"The Foxhound is exactly the right vehicle for British forces, providing what commanders on the ground in Afghanistan are describing as 'an enormous leap forward' in capability," commented Ricardo CEO Dave Shemmans. "This highly impressive vehicle that has the potential to save many lives, has resulted from our very successful subcontract with prime contractor General Dynamics. Ricardo is proud to have assembled all of the Foxhounds ordered for British forces by the MoD."

"Production of the Foxhound is already well underway at our special vehicle production facility where we have commissioned a dedicated production line for this purpose," added Ricardo director of manufacturing operations Mark Barge. "Together with our work for premium vehicle customers such as Bugatti, McLaren and the motorsports industry up to and including Formula 1 teams, Ricardo has an enviable track record of manufacturing exceptional products."

Exhibitions

Plasan introduces the Spider-SC1 Surveillance Vehicle - a complete solution for Homeland Security and border protection

Plasan Security Systems, a global leader in the field of customized integrated solutions for tactical mobile platforms, is introducing its Spider-SC1 Surveillance Vehicle – a high-survivability modular suite, providing a comprehensive solution for Homeland Security needs, including border protection - at LAAD Defense & Security 2013 in Rio de Janeiro, Brazil, on April 9-12.

Spider-SC1 is a manned, 4x4, armored, high-maneuverability, all-terrain vehicle, with integrated state-of-the-art technologies - including a surveillance system for long-range day-and-night tracking, video analytics, a tactical observation balloon, and a cutting-edge two-way communications system. It is a unique, high-survivability, superior-performance solution that allows the effective handling of today's Homeland Security needs, including protecting borders; preventing the smuggling of drugs, weapons, and persons; and dealing with terror threats in peripheral areas. This one-of-a-kind vehicle allows surveillance, and the securing of especially large geographical areas, in a fully autonomous manner, independent of additional systems.

Plasan is also proud to announce that it is currently expanding its offerings to include a 360° tailored solution for the protection of critical infrastructures, developed to effectively deal with a broad range of terror threats, natural disasters, and safety hazards. This all-inclusive solution combines advanced physical, electronic, and logical security means and measures, to prevent incidents from occurring or mitigate their consequences - including loss of life, disruption of operations, economic losses, and environmental harm. It was designed to improve resilience, allow uninterrupted operation, and reduce liability.Plasan places its extensive know-how - gathered during numerous years of experience in providing fully tailored, cost-effective protective solutions - at the service of managers and operators of critical infrastructures. The expertise of the company's highly skilled R&D team - in ballistics, in the analysis of a broad range of threats, in advanced materials, and in the simulation of disaster scenarios - as well as its hands-on military experience, allows it to conceptualize, develop, and engineer solutions ideally

suited to deal with today's diverse threats.

Assaf Baruch, Head of Plasan's Security Division in Brazil, stated: "Plasan is proud to introduce its pioneering Spider-SC1 Surveillance Vehicle at LAAD 2013. We are confident that this unique solution, along with our innovative command and control system, advanced mapping tools and simulation models, and our 360° solution for the protection of critical infrastructures, will ideally meet the needs of the Brazilian market. We are currently developing a mobile frontline command & control project for Homeland Security applications at the request of the Brazilian government, and with our new products and services, look forward to expanding our activities in this market."

Term of the day

Daisho

The daisho is a Japanese term for a matched pair of traditionally made Japanese swords worn by the samurai class in feudal Japan.

The word "daisho" literally means "big-little."

The concept of the daisho originated with the pairing of a short sword with whatever long sword was being worn during a particular time period. It has been noted that the tachi would be paired with a tanto, and later the uchigatana would be paired with another shorter uchigatana. With the advent of the katana, the wakizashi eventually was chosen by samurai as the short sword over the tanto.

The wearing of daisho was limited to the samurai class after the sword hunt of Toyotomi Hideyoshi in 1588, and became a symbol or badge of their rank. Daisho may have become popular around the end of the Muromachi period (1336 to 1573) as several early examples date from the late sixteenth century. An edict in 1629 defining the duties of a samurai required the wearing of a daisho when on official duty. During the Meiji period an edict was passed in 1871 abolishing the requirement of the wearing of daisho by samurai, and in 1876 the wearing of swords in public by most of Japan's population was banned; this ended the use of the daisho as the symbol of the samurai, and the samurai class was abolished soon after the sword ban.

Term of the day

Xiphos

The xiphos is a double-edged, single-hand sword used by the ancient Greeks.

It was a secondary battlefield weapon for the Greek armies after the spear or javelin. The classic blade was generally about 50–60 cm long, although the Spartans supposedly started to use blades as short as 30 cm around the era of the Greco-Persian Wars. The xiphos sometimes has a midrib, or is diamond or lenticular in cross-section. It was generally hung from a baldric under the left arm.

The xiphos was generally used only when the spear was discarded for close combat.

The xiphos' leaf shaped design lent itself to both cutting and thrusting. The design has most likely been in existence since the appearance of the first swords.

Term of the day

Periscopic Sight

Periscopic sight is a sight in which the objective lens is at a different height to the eyepiece(s), usually above.

Tank periscopic sights are mounted on the roof of the tank turret.

Until the advent of overhead top attack, the periscopic sight had a distinct advantage over the telescopic sight from the protection point of view, as it preserved the integrity of the turret frontal armour. However, to maintain the alignment of the periscopic sight with the gun, it is necessary to elevate and depress the line of sight, either by moving the sight itself or its top mirror, using a mechanical parallelogram linkage or sensors. The

offset between the gun and the sight produces a parallax error, but this can be compensated for by means of the fire control computer. When a parallelogram linkage is used, the accuracy of the system can be degraded if the vehicle is subjected to large changes in temperature.

Defence Industry

New Generation Casspir Raises the Standards for Mine-Protected Vehicles

"The basic, reliable features of the CASSPIR remain the same," says Ashley Williams, the General Manager of Denel Mechem the company which designs and manufactures the durable vehicle. "It has always been the world leader in its class – providing unequalled protection against landmines, roadside bombs and automatic rifle fire.

"Now we have upgraded the hull protection by using a higher quality of steel, increased its power, improved the accessibility for passengers and mounted it on a more versatile and reliable vehicle platform," says Mr Williams.

The CASSPIR is the vehicle of choice for demining or military operations and has been used from Afghanistan to Mozambique, by the United Nations, the SA National Defence Force, private security companies and police services around the globe.

Denel Mechem is a world leader in the mine-action services and the battle-clearance industry. More than three decades after the first CASSPIR came off the production line in 1979 the New Generation 2000 will provide its end-users with new options and increased protection.

There are two versions of the CASSPIR NG 2000 – one mounted on a Mercedes Benz drive train and the 2000B using a Powerstar engine as platform. Both versions will feature an upgraded steel hull meeting the highest industry standards of protection.

Jack Geldenhuys, Mechem's Manager for Vehicle Systems says the new vehicle will also feature side doors for the driver and crew and an improved back-door design for troops or passengers to enter and exit during operations.

Mr Geldenhuys says a key feature of the CASSPIR is its modular design which gives it an unrivalled level of versatility. At the Denel Mechem production facilities in Lyttelton the vehicle can be modified and adapted to meet the requirements of the client.

Thus the CASSPIR can feature in its conventional role as mine-resistant troop carrier but can also be adapted to become a field ambulance, a command-and-control vehicle, a recovery vehicle or a light transport vehicle. All variants are fitted with run-flat tyres and are available in 6X6 or 4X4 format and with a choice of manual or automatic transmission.

It has a cruising speed of 100 kph on roads and up to 40 kph on most off-road conditions with a reach of up to 800km on a standard fuel tank. It is designed to withstand the blast of 14kg of explosives under each wheel – which is more than can be delivered by two landmines.

Mr Geldenhuys says the decision to standardise the engine and drive train makes the CASSPIR a more cost-effective solution for the international agencies and defence forces that depend on its outstanding reputation for reliability. This means substantial savings on maintenance costs, spare parts and logistics.

Defence Industry

Oshkosh Defense Delivers 15,000th FMTV Truck

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation (NYSE:OSK), has delivered the 15,000th Family of Medium Tactical Vehicles (FMTV) truck to the U.S. Army and National Guard – setting quality and delivery records for the program. Since being awarded the FMTV contract in 2010, Oshkosh has delivered more than 21,000 FMTV trucks and trailers.

The U.S. Army and National Guard rely on the FMTV at home and abroad in tactical and combat operations, relief efforts, and unit resupply missions. Oshkosh has delivered soldiers unprecedented FMTV quality. In addition, the company operates an enterprise-wide supplier network for multiple vehicle programs to provide economies of scale across fleets.

"The FMTV program is exemplary of the quality and value that Oshkosh provides to our military customers across all of our operations," said John Bryant, senior vice president of Defense Programs for Oshkosh Defense. "Our team has worked in harmony with the Army's goals and schedule from the onset to produce and deliver a vehicle with Oshkosh quality and performance, which provides soldiers with greater confidence as they perform their missions."

As part of the FMTV contract, Oshkosh has delivered the FMTV Wrecker, with its tested retrieval system that leverages Oshkosh's extensive wrecker experience based on the U.S. Army's Heavy Expanded Mobility Tactical Truck (HEMTT). Fielding began in December 2012.

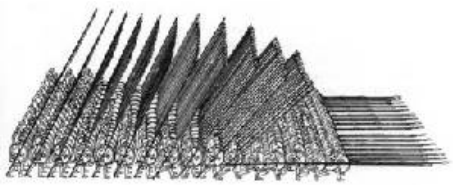
The five-year FMTV requirements contract for the production of trucks and trailers, as well as support services and training, runs through fiscal year 2014. Oshkosh also is actively pursuing opportunities for its FMTV with U.S. allies and coalition partners around the world. To date, the company has received foreign military sales (FMS) orders from three international militaries.

The Oshkosh FMTV is a series of 17 models and 23 configurations ranging from 2.5-ton to 10-ton payloads.

The vehicles feature crew-protecting armor and advanced technologies to provide the capability, versatility, mobility and protection to move troops and supplies, recover vehicles and weapon systems, or haul equipment wherever the mission requires. Commonality of parts of over 80 percent across chassis variants optimizes logistics efficiency and reduces operational costs. The Long-Term Armor Strategy-compliant cab and other advanced technologies give military personnel the enhanced protection they need to confidently complete their missions.

Term of the day

Sarissa



The sarissa or sarisa was a 4 to 7 meter (13–21 feet) long spear used in the ancient Greek and Hellenistic warfare.

It was introduced by Philip II of Macedon and was used in the traditional phalanxes of Philip II of Macedon as a replacement for the earlier dory, which was considerably shorter. The phalanxes of Philip II of Macedon were known as Macedonian phalanxes.

The sarissa, made of tough and resilient cornel wood, was very heavy for a spear, weighing approximately 12 pounds (5.4 kg) for a 15-foot (4.6 m) sarissa and approximately 14.5 pounds (6.6 kg) for an 18-foot (5.5 m) sarissa. It had a sharp iron head shaped like a leaf and a bronze butt-spike that would allow it to be anchored to the ground to stop charges by enemy soldiers. The butt-spike served to balance out the spear, making it easier for soldiers to wield. The butt-spike could be used as a back-up point should the main one break.

The sheer bulk and size of the spear required the soldiers to wield the spear with both hands, allowing them to carry only a 24 inch shield (pelta) suspended from the neck to cover the left shoulder. Its great length — up to eighteen feet in two lengths joined by a central bronze tube — was an asset against hoplites and other soldiers bearing shorter weapons, because they had to get past the sarissas to engage the phalangites. However, outside the tight formation of the Phalanx the sarissa was useless as a weapon and a hindrance on the march.

Contracts

Krauss-Maffei Wegmann Supports Qatar's Army Modernization

The Emirate of Qatar is in the process of modernizing its land forces, comprising some 8500 soldiers, which operate a fleet of tanks and artillery that is in parts more than 40 years old.

Therefore, Qatar signed a contract with the German defense company Krauss-Maffei Wegmann (KMW) about the delivery of 24 artillery systems PzH 2000 and 62 LEOPARD 2 main battle tanks. The projectrs total amount reaches €1.89 billion, including the delivery of peripheral equipment, training installations and additional services.

The systems delivered to Qatar by Krauss-Maffei Wegmann are intended to progressively replace the emirates outdated artillery and tanks of French and South African origin, which will be scrapped.

Robots

Northrop Grumman Launches CUTLASS, Next Generation Unmanned Ground Vehicle

LONDON, -- Northrop Grumman Corporation has launched CUTLASS, its latest generation unmanned ground vehicle (UGV), expanding its range of industry-leading capabilities in unmanned systems for the remote handling and surveillance of hazardous threats.

CUTLASS has been designed, developed and manufactured by Northrop Grumman in the U.K., and includes significant advances in technology and performance and a range of features that provides state-of-the-art capabilities for national security and resilience applications.

"Our CUTLASS vehicle is setting new standards in the UGV market and significantly enhancing the ability of users to handle hazardous threats safely. It is more dexterous, cost effective and, as a package, four times faster than any other UGV," said Greg Roberts, managing director, defence and security, Northrop Grumman Information Systems Europe. "The vehicle is already in service across the U.K. and has proven itself to be robust and capable in the most demanding

environments. We look forward to exploiting the potential opportunities for exporting this capability into international markets."

CUTLASS will be on display in Northrop Grumman's exhibit at the Counter Terror Expo, where it will also show its range of capabilities in daily live scenario-based demonstrations. The international exhibition and conference Counter Terror Expo takes place at the National Hall, Olympia, London, April 24-25.

CUTLASS offers the latest technology in a modular design, enabling the user to deal safely with the full range of hazardous threats from a distance, including the detection and disposal of explosive ordnance. Its highly versatile design means that it is capable of accommodating a wide range of payloads, sensors and tools. It carries all of the tools and sensors it needs to perform the full range of operations required for explosive ordnance disposal and other applications, avoiding the need to deploy two standard UGVs. CUTLASS saves up to 50 percent on the through-life costs when compared to owning and operating two standard UGVs.

The manipulator arm is equipped with a three-fingered, state-of-the-art gripper and has nine degrees of freedom for greater movement and agility inside limited spaces. With a specialised sensing system it provides a high level of control and dexterity to minimize damage to property and preserve forensic evidence.

Using CUTLASS, a hazardous situation can be restored to normal up to four times more quickly than with any other UGV. The combination of the speed of the wheeled platform, which can reach speeds of up to 12 kph, and the ability of CUTLASS to carry multiple tools and sensors negates the need to return to the incident control point, thus saving considerable time. The robot is able to creep along at deliberately slow speeds for delicate operations and may accelerate to high speeds to enable rapid travel. The six-wheeled design offers mobility on all types of hard and soft terrain and in all weather conditions.

Northrop Grumman's unmanned ground vehicle business has been established in Coventry, U.K., for more than 20 years. Today, the company designs, develops and manufactures in the U.K. some of the most capable and reliable unmanned ground vehicles available, from the Wheelbarrow bomb disposal robot to the latest vehicle, CUTLASS.

Northrop Grumman has more than 2,000 unmanned ground vehicle systems in operation around the world.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in unmanned systems, cybersecurity, C4ISR, and logistics and modernization to government and commercial customers worldwide.

BAE Recovery Vehicles to Receive Upgrades

BAE Systems received a $28.7 million contract to upgrade 11 M88A1 Medium Recovery vehicles to the M88A2 Heavy Equipment Recovery Combat Utility Lift Evacuation System (HERCULES) configuration.

"The M88A2 is able to hoist and tow twice the weight than that of an M88A1, including an M1 Abrams tank, and is an essential component in helping our Armed Forces to fulfill successful recovery missions," said Mark Signorelli, vice president and general manager or Armored Combat Systems at BAE Systems. "This contract demonstrates the continued need to invest in the HERCULES and shows the Army's commitment to the irreplaceable role it serves."

The M88A2 HERCULES offers operational and logistics commonality with the existing M88A1 fleet, which provides simplified training and parts availability benefits to the end-user. Key upgrades for the HERCULES include: improved power-assisted braking, steering, winching, hoisting, and increased horsepower. HERCULES has the lowest acquisition, operational and maintenance cost of any 70-ton capable recovery system, answering the need for cost-effective, self-supporting heavy recovery performance. The M88A2 provides unparalleled capability for recovering today's 70-ton combat vehicles including the M1A1, M1A2, Leopard MBT, bridging systems, and other medium weight vehicles.

The upgrade work will be performed by the existing workforce at BAE Systems operations in York, Pennsylvania and Aiken, South Carolina. The contract was awarded by the U.S. Army TACOM Life Cycle Management Command with deliveries to conclude in March 2014. The award brings the total value of U.S. Government contracts that BAE Systems has been awarded on the HERCULES program to $2.1 billion. To date, 575 HERCULES vehicles have been fielded against an overall U.S. Army requirement of 632 vehicles, and a total of 84 vehicles have been fielded to the U.S. Marine Corps.

The M88 plays a critical role the company's campaign to maintain the Bradley Industrial Base by protecting the affordability of the Army's combat vehicles. BAE Systems' York facility is responsible for four of the five U.S. Army Armored Brigade Combat Team (ABCT) vehicles, including the Bradley and the M88. In addition to proposing that Congress provide base level investment in critical combat vehicle improvements, BAE Systems

is working with the Army to secure increased funding for the M88 program to help carry the workload at the facility.

Defence Industry

Goodyear unveils special edition military support tire

AKRON, Ohio -- The Goodyear Tire & Rubber Company, exclusive tire supplier of NASCAR's three major national series, today unveiled the special commemorative tires it will supply for the upcoming NASCAR races at Charlotte Motor Speedway to wave the green flag on the fourth year of the successful Goodyear Gives Back campaign.

A multi-year fund-raising effort designed to generate support for the U.S. Armed Forces, the Goodyear campaign has raised, to date, more than $700,000 in cash and product donations that have gone directly to supporting the troops and their families.

Goodyear will replace its iconic Goodyear "Eagle" and "Wrangler" sidewall designs with desert camouflage lettering that reads "Support Our Troops" on its NASCAR race tires that will run during all of the upcoming NASCAR races at Charlotte Motor Speedway. A number of initiatives are part of this year's program, including at-track activities and multiple opportunities for racing fans to participate, all to benefit the Support Our Troops organization.

Goodyear is one of the world's largest tire companies. It employs approximately 69,000 people and manufactures its products in 52 facilities in 22 countries around the world. Its two Innovation Centers in Akron, Ohio and Colmar-Berg, Luxembourg strive to develop state-of-the-art products and services that set the technology and performance standard for the industry.

Defence Industry

Denmark orders Heavy Tactical Recovery Vehicles from RMMV

Weighing some 36 tons, the Heavy Tactical Recovery Vehicle (HTRV) is based on the tried-and-tested RMMV SX45 8x8 chassis, combining extreme stability, safety and crew comfort with outstanding manoeuvrability, whether on the road or in the toughest terrain.

Thanks to its integrated Miller recovery module, the RMMV HTVR is able to recover heavy disabled vehicles weighing up to 40 tons or containers weighing up to 17 tons – quickly and safely, even under the most extreme conditions. The RMMV HTRV thus ideally complements the array of equipment fielded by modern armies: many of the tactical and logistical vehicles with protective modules used in deployed operations today have become heavier, making a high-performance recovery capacity imperative.

Level 3/3 ballistic and anti-mine protection keep the crew safe from small arms fire and IED blasts.

The recovery module of the RMMV HTRV is made by the US company Miller Industries Towing Equipment Inc. of Ooltewah, Tennessee. Miller is the global leader in recovery vehicles. The RMMV HTRV is equipped with a heavy rotator recovery and lifting crane with an output of 75 mt, together with two independently controllable Rotzler HZ090 winches and a Rotzler TR200 main recovery winch with 30-ton tractive force. It also features various mission-specific items of equipment. Integration of the Miller recovery module will take place at MAN Trucks Bus in Denmark, thus constituting a 100% offset transaction.

The Danish armed forces will be the first on the European mainland to introduce the RMMV HTRV. Denmark already has a number of tactical and logistical vehicles from the company’s HX and SX families in its inventory.

Delivery begins in the first quarter of 2014, and is scheduled to conclude in the second quarter of 2015.