

# Army Guide monthly



## # 3 (6) March 2005

- **UAE To Get First Local Gun Manufacturer**
- **Georgian Soldiers Head to Iraq**
- **Zimbabwe Buys Weapons from China in Contravention of the Sanctions**
- **United Defense Industries, Inc. has received two separate contracts for the Bradley program**
- **United Defense, Battelle Demonstrate Prototype Fuel Cell Power Unit for Bradley Fighting Vehicle**
- **Israeli Firm Wins U.S. Weapons Contract in Iraq**
- **United Defense to be Acquired by BAE Systems**
- **General Dynamics Awarded \$161 Million for M1A2 Tank Retrofit**
- **General Dynamics Awarded Contract Worth Up To USD \$78 Million for RG-31 Vehicles**
- **General Dynamics Receives Order for Fifth Stryker Brigade Vehicles**
- **United Defense Integrates Electro-Magnetic Armor Technology on Combat Vehicle and Defeats Live Threats**
- **Strategic Alliance between Denel and Nitrochemie: Bundling of resources and platforms to strengthen international business ties**
- **BAE Systems wins competition for 105 mm improved ammunition**
- **General Dynamics Awarded \$11 Million Modification to Previously Awarded Canadian LAV III Contract**
- **Otokar: a major player in Turkish defence industry**
- **Making the Best Tank Better**
- **Army raises enlistment age for reservists to 39**
- **iRobot wins \$18 million U.S. Navy contract to deliver explosive ordnance disposal robots**
- **Active Protection for Armored Fighting Vehicles from RAFAEL and ELTA**
- **BAE Systems awarded \$834 million contract for lightweight howitzer**

## Defence Industry

### UAE To Get First Local Gun Manufacturer

An Abu Dhabi-based company announced Feb. 27 it was setting up a small-arms manufacturing facility with international assistance, the first such plant in the United Arab Emirates.

The International Golden Group said it would invest 500 million dirhams (\$136 million) in the first phase and expand the investment by up to two billion dirhams (\$544 million) in the third phase.

“The company will supply small pistols of 9mm and 12.7mm in the first phase to the UAE armed forces under a contract,” IGG vice chairman Fadil Saif al-Kaabi told reporters.

“There are plans to manufacture medium-sized pistols and bigger pistols in the second and third phases,” he said.

Technical support will be provided by South Africa, Finland and Bulgaria, Kaabi said, without giving further details.

“This is the first such manufacturing facility in the UAE. We plan to export to (other) Gulf countries at a later stage,” he said.



## Defence Industry

### Georgian Soldiers Head to Iraq

The first of Georgia's 550 troops whose deployment will nearly triple the Caucasus nation's tiny contingent in Iraq left March 1 for the war-torn country.

“I order you to all return safe and sound,” armed forces chief Levan Nikoleishvili said at a send-off ceremony outside of Tbilisi.

The troops are due to be posted in Baghdad, where they will ensure security at a military base of the U.S.-led coalition forces in the Iraqi capital.

Georgia said in the beginning of the year that it would boost its 300-strong troop presence in Iraq, but the U.S., which was in charge of transporting the soldiers, had delayed the planned January deployment for technical reasons.

Georgia, a close ally of the United States since U.S.-educated Mikhail Saakashvili was inaugurated president in January 2003, sent its first 70 soldiers to Iraq in August of that year and has steadily increased its military presence ever since.

The 300 soldiers currently in Iraq are posted in the city of Baaquba, northeast of Baghdad.



## Defence Industry

### Zimbabwe Buys Weapons from China in Contravention of the Sanctions

The government of the Republic of Zimbabwe received a new batch of weapons from China. Under the conditions of the weapons supply embargo imposed on Zimbabwe in 2000 by the European

Union because of human rights violations, the government headed by Robert Mugabe continues to develop clandestine military trade relations with China and other Asian countries, informs Zim Online ([www.zwnews.com](http://www.zwnews.com)).



The new batch of weapons includes automatic rifles, transportation vehicles and expendable materials. The weapons were secretly delivered to Zimbabwe through the port of Beira in Mozambique.

According to some officers of Zimbabwe's Army, who preferred not to mention their names, the government of Zimbabwe is to receive more than 100 EQ2050 series armoured cars. The supplies of weapons are carried out on the threshold of the general parliamentary elections that are to take place on the 31st of March.

The EQ2050 armoured cars are produced by the corporation DongFeng Motor Corporation (DFM) of China. These vehicles are a modified Chinese version of the American M998 (HMMWV) vehicle.

According to the officers, President Mugabe does not want to take risk and intends to equip the Army with the Dongfeng armoured cars before the elections take place.

The high-ranking officers of Zimbabwe's Army repeatedly said that they would not allow anybody who had not taken part in the liberation war of the 1970s, to come to power. This applies directly to the politician Morgan Tsvangirai, who is not a veteran of 'chimurenga' (liberation war).

In 1965-1980, there was a civil war in the Republic of Rhodesia between the government formed by the white minority and the nationalist leaders of the black aborigines. The war ended in a victory of the guerilla troops. The war was called 'chimurenga' – war for liberation. The head of the ZANU party Robert Mugabe won in 1980 the general elections and became Prime Minister of the new state – Zimbabwe.

After the armed forces of Zimbabwe took part in the war in Congo in the 1990s, most of the weapons had to be replaced. Due to the fact, that during the liberation war the ZANU faction was supported by the Chinese government, it is with China that Zimbabwe's government came to an agreement about new supplies of weapons in 2005. In so doing, the government officials refuse to give any comments as to the deal, sometimes even denying that the supplies have taken place.

The total amount of the deal is estimated at 7 billion Zimbabwe dollars.

The opposition in Zimbabwe expressed their protest based on the apprehension that the re-equipped army would be used for suppressing civil unrest, as it already took place in the mid-1980s.



## Contracts

**United Defense Industries, Inc. has received two separate contracts for the Bradley program**

YORK, PA, February 14, 2005 - United Defense Industries, Inc. has received two separate contracts for the Bradley program; a change order not to exceed \$54 million and a contract modification for \$14.2 million.

**Change order.** The change order, not-to-exceed \$54 million, from the U.S. Army's Tank-automotive and Armaments Command (TACOM) is a contract to provide 120 Bradley A3 vehicles instead of 131 Bradley Operation Iraqi Freedom (OIF) variants awarded in June.

The change order calls for 120 vehicles to be equipped with all the features of the A3 configuration with the exception of the Commander's Independent Viewer, and is initially funded at \$27 million. The A3, is a technologically advanced, digital combat system that significantly increases the Bradley's lethality and survivability in battle.

**Under the order,** United Defense will provide 80 Bradley M2A3 Infantry Fighting Vehicles, 29 Bradley M3A3 Cavalry Fighting Vehicles and 11 Bradley A3 Fire Support Vehicles (A3 B-FIST) to the Army. Work on the contract will be done at United Defense facilities in Aiken, SC and York and Fayette County, PA. Vehicle delivery is scheduled to begin in mid 2006.

**Contract modification.** The second contract is a \$14.2 million modification, initially funded at \$7.1 million, from TACOM to convert Bradley air defense variants to an infantry fighting vehicle configuration.

**Under the contract modification,** United Defense will remove the Stinger air defense equipment from 88 Bradleys and convert the vehicles to standard M2A2 ODS infantry fighting vehicles. This effort runs through June 2006. Work will be completed at United Defense facilities in York, PA, Santa Clara, CA and Aiken, SC.

The Bradley has played a centerpiece role in Operation Iraqi Freedom, and in the ongoing Global War on Terror is still providing outstanding survivability, mobility and lethality to our soldiers in all types of close combat urban scenarios or in open combat desert warfare.

**About United Defense**

United Defense designs, develops and produces combat vehicles, artillery, naval guns, missile launchers and precision munitions used by the U.S. Department of Defense and allies worldwide, and provides non-nuclear ship repair, modernization and conversion to the U.S. Navy and other U.S. Government agencies. To learn more about United Defense, visit <http://www.uniteddefense.com>.



## Future Technologies

**United Defense, Battelle Demonstrate Prototype Fuel Cell Power Unit for Bradley Fighting Vehicle**

FT. LAUDERDALE, FL, February 16, 2005 - Battelle and United Defense Industries, Inc. (NYSE: UDI), have teamed to develop and demonstrate a prototype fuel cell auxiliary power unit (APU) on a Bradley Fighting Vehicle that is designed to increase fuel efficiency and reduce logistics burden for the U.S. Army.

The system is designed to provide sufficient power to operate the vehicle's electronics indefinitely without engaging the main engine. This fuel cell technology was developed at Battelle's laboratories in Columbus, Ohio and Richland, Washington, with funding support from the U.S. Army's Tank Automotive Research, Development and Engineering Center (TARDEC) and its National Automotive Center. The system was integrated into a Bradley Fighting Vehicle by United Defense at its Ground Systems Division facility in Santa Clara, Calif. Both organizations are displaying this technology at the Association of the U.S. Army's Winter Symposium here today through February 18 at the Broward County Convention Center.

Enhancing fuel efficiency while maintaining effectiveness will further enhance the combat effectiveness of the battle-proven Bradley, a key vehicle system for the Army in intense urban combat and rural scenarios. A large percentage of the tonnage in a military deployment is fuel. Increasing fuel efficiency can enhance military responsiveness by easing the logistic burden.

"By combining the strengths and scientific know-how of our two teams, we hope to provide the U.S. military and the troops in the field with an advanced technical solution to a very real problem," said Steve Kelly, Senior Vice President of Battelle's National Security Division.

"Fuel cell technology offers a silent, clean, state-of-the-art enhancement for current force vehicles such as the Bradley," said Andy Hove, United Defense's Director of Bradley Combat systems. "Integration of Battelle's three-kilowatt fuel cell will not only give Bradley crews a silent watch capability, it will also reduce the stress on the main engine, lower the overall fuel consumption and reduce the heat level in and around the vehicle."

**About Battelle**

Battelle is a global leader in science and technology. Headquartered in Columbus, Ohio, it develops and commercializes technology and manages laboratories for customers. Battelle, with the national labs that it manages or co-manages, oversees 16,000 staff members and conducts \$3 billion in annual research and development. Battelle innovations include the development of the office copier machine (Xerox), pioneering work on compact disc technology, medical technology advancements and fiber optic technologies. For more

information, visit <http://www.battelle.org> or contact National Media Relations Manager Katy Delaney at (410) 306-8638 or at [delaneyk@battelle.org](mailto:delaneyk@battelle.org)

About United Defense

United Defense designs, develops and produces combat vehicles, artillery, naval guns, missile launchers and precision munitions used by the U.S. Department of Defense and allies worldwide, and provides non-nuclear ship repair, modernization and conversion to the U.S. Navy and other U.S. Government agencies. To learn more about United Defense, visit <http://www.uniteddefense.com>.

United Defense Industries, Inc. announced that it has entered into a definitive merger agreement with BAE Systems North America Inc., the U.S. subsidiary of BAE Systems plc.

BAE Systems will acquire all of the outstanding shares of United Defense for \$75.00 per share in cash. With the assumption of United Defense's \$217.7 million of net debt (as of December 31, 2004), the value of the transaction would be approximately \$4.2 billion. The closing of the transaction is subject to certain terms and conditions customary for transactions of this type, including receipt of stockholder approval and necessary regulatory approvals and is expected to be completed in the second quarter of 2005.

**Defence Industry**

**Israeli Firm Wins U.S. Weapons Contract in Iraq**



Israeli company Plasan Sasa has won a contract to provide armor for U.S. military vehicles in Iraq, company sources said March 8.

Under the terms of the contract, the Sasa kibbutz company in the northern Galilee region will provide armour for 2,000 trucks and other vehicles. It will supply kits that can be assembled on site by U.S. troops serving in Iraq.

Aside from the Israeli and U.S. armies, Palsen Sasa also supplies the British, Dutch and Indian militaries.

The U.S. military has recently suffered criticism that its vehicles operating in Iraq are insufficiently protected with amour plating.

**Contracts**

**General Dynamics Awarded \$161 Million for M1A2 Tank Retrofit**



STERLING HEIGHTS, Mich. - The U.S. Army Tank-Automotive and Armaments Command has awarded General Dynamics Land Systems, a business unit of General Dynamics (NYSE: GD), a \$161 million modification as part of a \$283 million contract to retrofit 129 M1A2 Abrams tanks with an enhanced electronics package. The retrofitted tanks will modernize the U.S. Army's 3rd Armored Cavalry Regiment, Fort Carson, Colo.

The M1A2 is the latest, most technologically advanced Abrams tank, entering service in 1993. It is replacing 20-year-old M1A1-configuration tanks which began service in the 1980s. This retrofit is part of the overall M1A2 tank upgrade program that integrates new technologies to improve soldier warfighting capability with enhanced digital command and control features like color maps and displays, computer memory, processing speed and communications.

In May 2004 the U.S. Army awarded General Dynamics a \$121 million contract to retrofit 65 of the unit's M1A2 tanks. This modification rounds out the contract to modernize the unit's entire 129-tank fleet.

Work will be performed in Lima, Ohio, Tallahassee, Fla., Scranton, Pa., Muskegon, Mich., and Anniston, Ala., by existing General Dynamics employees.

General Dynamics, headquartered in Falls Church, Virginia, employs approximately 70,200 people worldwide and had 2004 revenue of \$19.2 billion. The company is a market leader in mission-critical information systems and technologies; land and expeditionary combat systems, armaments and munitions; shipbuilding and marine systems; and business aviation. More information about the company

**Defence Industry**

**United Defense to be Acquired by BAE Systems**



can be found at [www.generaldynamics.com](http://www.generaldynamics.com).

## Contracts

### General Dynamics Awarded Contract Worth Up To USD \$78 Million for RG-31 Vehicles



LONDON, Ontario, Canada - The U.S. Army Communication and Electronics Command, on behalf of the U.S. Army Program Manager for Close Combat Systems, has awarded General Dynamics Land Systems - Canada a contract with a potential value not to exceed USD \$78 million (CAD \$97 million) for 148 RG-31 Medium Mine Protected Vehicles. Included in this price is USD \$3 million in spare parts. General Dynamics Land Systems, the Canadian company's parent corporation, is a business unit of General Dynamics (NYSE: GD).

Under this contract, General Dynamics Land Systems - Canada will provide the program management and logistics support while BAE Land Systems OMC of South Africa will manufacture the vehicles.

The contract, which has initial funding of USD \$38.2 million, was signed through the Canadian Commercial Corporation, a Crown Agency of the Canadian Government. Final contract definition and pricing is expected to be completed by April 2005. Deliveries will occur from April to Dec. 2005.

The RG-31 tactical vehicle, a product of BAE Land Systems OMC of South Africa, offers excellent ballistic and mine blast protection, and will be used by the U.S. Army in support of on-going activities.

Nine RG-31s were previously supplied to the US Army in 2003 and 2004 and have seen service overseas. The Canadian Army has deployed three RG-31s as part of its contribution to the International Security Assistance Force in Afghanistan. In addition, the vehicles are extensively used by NATO forces in the former Yugoslavia as well as the United Nations in Lebanon, Georgia, Syria and Kosovo.

General Dynamics Land Systems - Canada, located in London, Ontario, Canada is a business unit of General Dynamics Land Systems of Sterling Heights, Michigan. For more than 25 years, approximately 1500 highly skilled technical personnel design, manufacture and deliver a unique family of light armoured vehicles (LAV). More information on the company is available at [www.gdlsCanada.com](http://www.gdlsCanada.com).

General Dynamics, headquartered in Falls Church, Virginia, employs approximately 70,200 people worldwide and had 2004 revenue of \$19.2 billion. The company is a market leader in mission-critical

information systems and technologies; land and expeditionary combat systems, armaments and munitions; shipbuilding and marine systems; and business aviation. More information about the company is available on the Internet at [www.generaldynamics.com](http://www.generaldynamics.com).

## Contracts

### General Dynamics Receives Order for Fifth Stryker Brigade Vehicles



STERLING HEIGHTS, Mich. - The U.S. Army has ordered a fifth brigade of Stryker wheeled combat vehicles from General Dynamics Land Systems, a business unit of General Dynamics (NYSE: GD). The order for 423 vehicles to equip the brigade is valued at \$582 million. Vehicle deliveries are slated for January 2006 through January 2007.

The vehicles are part of a \$4 billion contract awarded in November 2000 to equip the Army's new Stryker Brigade Combat Teams with more than 2,100 Stryker armored vehicles. To date, more than 1,000 Strykers have been delivered.

The first Stryker brigade has been operating very successfully in Iraq since October 2003, demonstrating the value of a force that can move rapidly as a cohesive combined-arms combat team. The armored vehicles enable Stryker Brigade Combat Teams to maneuver easily in close and urban terrain, while providing protection in open terrain. Performance highlights include C-130 transportability; networked command, control, computing and communications, intelligence, surveillance and reconnaissance (C4ISR) capability; integral 14.5mm armor protection and 152mm artillery airburst protection; self-deployment and self-recovery capability; reduced vehicle acoustic signature; ability to carry a nine-man infantry or engineer squad; and bunker and wall breaching capability.

Stryker is the Army's highest-priority production combat vehicle program and the centerpiece of the ongoing Army Transformation. The Stryker family of eight-wheel-drive combat vehicles can travel at speeds up to 62 mph on highways, with a range of 312 miles. Stryker vehicle configurations include carriers for mortars, engineer squads, infantry squads, command groups, and fire support teams; a nuclear, chemical and biological reconnaissance vehicle; anti-tank guided missile and medical evacuation vehicles; and the Mobile Gun System, a 105mm cannon mounted in a low-profile turret that is integrated into the Stryker chassis.

## Strategic Alliance between Denel and Nitrochemie: Bundling of resources and platforms to strengthen international business ties

Nitrochemie Aschau GmbH, of Aschau, Germany, has entered a long-term strategic alliance with the South African company Denel Land Systems, Western Cape. Cooperation will focus on the development of improved modular propelling charges for 105 mm and 155 mm cal. artillery systems.

Partner of Denel Land Systems, Western Cape: Nitrochemie Aschau GmbH – a leading international supplier of know-how and expertise in the manufacture of combustible cast parts and (modular) propelling charges.

The first jointly developed product is expected to be ready for qualification in 2006. Denel Land Systems, Western Cape, which employs a staff of approximately 1,200, belongs to the Denel Group, one of South Africa's largest aviation and defence technology concerns, employing a total workforce of some 10,700. Nitrochemie Aschau GmbH currently has just under 450 employees.

The strategic significance of the partnership of these two companies, both of them global leaders in the development and marketing of modular propelling charges for 155 mm artillery systems, is explained by Bodo Garbe, a managing director of Nitrochemie Aschau GmbH: "We both assume that there won't be anymore customer-financed development contracts, even though demand exists for new products in the 155 mm and 105 mm field. That's why we're pooling existing technologies and resources in order to develop new products and serve new markets. In this context, the sharing of development and production costs naturally plays a big role, and we'll be using the workshare model."

In practice, Denel Land Systems will focus on the production of propellant powder, while Nitrochemie Aschau will be responsible for the ignition systems. "Who will make the combustible cast parts and be in charge of loading and assembly will be decided on a case by case basis", declares Garbe.

For Nitrochemie Aschau GmbH, which had sales of roughly €62 million in fiscal 2004 (defence sales: approx. €36 million), cooperating with its new South African partner will bring a host of medium- and long-term advantages with regard to products and markets alike. As Garbe points out, "We have the chance to get in on the act with a state-of-the-art modular propelling charge system for 105 mm. Plus we'll be able to widen our customer base. We can also reduce the fluctuations in capacity utilization and achieve cost advantages specific to this alliance."

For Nitrochemie Aschau, which belongs to the Propellants unit of Rheinmetall Detec's Weapon and Munitions division, its partnership with Denel represents a further step in the systematic

General Dynamics, headquartered in Falls Church, Va., employs approximately 70,200 people worldwide and had 2004 revenue of \$19.2 billion. The company is a market leader in mission-critical information systems and technologies; land and expeditionary combat systems, armaments and munitions; shipbuilding and marine systems; and business aviation. More information about the company is available on the Internet at [www.generaldynamics.com](http://www.generaldynamics.com).

## Future Technologies

### United Defense Integrates Electro-Magnetic Armor Technology on Combat Vehicle and Defeats Live Threats

SANTA CLARA, CA, March 16, 2005 - United Defense Industries, Inc. (NYSE:UDI) achieved another industry first by successfully defeating incoming threats during live-fire testing of an Electro-Magnetic Armor (EMA) package fully integrated on a hybrid electric drive combat vehicle demonstrator.

This effort, using an EMA package fully integrated with the hybrid-electric drive system, was accomplished through a Cooperative Research and Development Agreement with the U.S. Army Research Laboratory and the Army's Tank Automotive Research Development and Engineering Center (TARDEC) in Warren, Mich.

According to TARDEC Director Dr. Richard McClelland, "Being able to leverage industry research expertise, such as this EMA program with United Defense, allows the Army to integrate life-saving advanced technology at a much more rapid pace than through traditional methods."

"The successful completion of live-fire testing of an EMA package on a hybrid-electric vehicle demonstrator illustrates the type of multi-hit capability that can be integrated into vehicle systems at significantly lower weight to provide a level of protection similar to reactive packages," said Tom Hutson, project manager for United Defense.

The EMA package successfully defeated a shaped charge threat during live fire testing Feb. 22 at Aberdeen Proving Ground in Maryland.

EMA technology can significantly enhance the survivability of vehicle systems as part of a layered approach ultimately aimed at increasing soldier protection. EMA uses high voltages and currents to defeat shaped charge warheads such as those from Rocket Propelled Grenades (RPGs). Research in reliable power management and delivery at lower volumes and weights for Pulse Forming Networks (PFNs) allows the system level integration, experimentation and demonstration of EMA on a combat vehicle.

internationalization of its operations. Within the space of a year, the share of exports in its total defence technology sales (approx. £36 million in 2004) rose from 44% (in 2003) to nearly 90%. Accounting for a considerable percentage of its export sales is the company's strategic partnership with Royal Ordnance Defence Ltd. of Filton, Bristol, a component of BAE Systems, which it entered in autumn 2001; since then, Nitorochemie has served as the UK's sole supplier of multibase powder and combustible cast parts.



### Defence Industry

#### BAE Systems wins competition for 105 mm improved ammunition

BAE Systems today announced that it has won a contract from the UK MOD for the manufacture and initial supply of 105mm Improved Ammunition (IA) for the L118 105mm Light Gun. The contract will, subject to successful qualification, lead to an initial buy of 50,000 shells valued at approximately £17M.

The 105mm IA contract was run under competition by the Defence Procurement Agency and the Land Systems proposal was selected for its advanced technology and better value for money.

Land Systems has invested over £15M during the last few years in developing an Insensitive Munitions (IM) technology and building a new manufacturing facility at Glascoed in South Wales. This new facility will enable Land Systems to provide a surge capacity to meet the demands of all identified UK ammunition programmes, with scope to meet export orders.

Steve Rowbotham, Managing Director of Land Systems (Munitions & Ordnance) said: "This contract will support and sustain skilled jobs across the United Kingdom and is fundamental to the continued success of the Land Systems business. This contract award is very good news for us. This will be the first opportunity for Land Systems to deploy the considerable technology investment and innovation that has been committed to the provision of Insensitive Munitions, which will offer the improved safety demanded by our armed forces and will also significantly enhance lethality over conventional ammunition."

Defence Procurement Minister, Lord Bach said: "As we have seen recently in Iraq and Afghanistan, artillery is a potent weapon on the modern battlefield and this advanced new munition will ensure that our front line troops get the world class equipment they need to get the job done. More effective against a range of targets and even safer to store, handle and transport it is also going to be produced across the UK where I am delighted to say it will help support and sustain skilled jobs."



### Contracts

#### General Dynamics Awarded \$11 Million Modification to Previously Awarded Canadian LAV III Contract

The Canadian Department of National Defence has awarded a \$10.9 million CAD modification to a previously awarded contract for LAV III vehicles to General Dynamics Land Systems - Canada. General Dynamics Land Systems, the Canadian company's parent corporation, is a business unit of General Dynamics.



Under this contract modification, General Dynamics Land Systems - Canada will manufacture 39 LAV III Engineer vehicles equipped with a remote weapons station, dozer blade, hydraulic tool system and provision for a safe lane marking system. This vehicle will enable field engineers to provide engineering and maintenance services for the LAV III fleet. Tasks will include mobility and counter-mobility maintenance through earthmoving activities and the building of field defences. Deliveries will take place between October 2006 and July 2007.



### Defence Industry

#### Otokar: a major player in Turkish defence industry



Otokar, the leader manufacturer in Turkish Defence Industry, exhibited two models of Cobra, armoured wheeled vehicle designed and produced by Otokar, during IDEX 2005 in Abu Dhabi, UAE, between 12th and 17th February.

Otokar, the leader manufacturer in Turkish Defence Industry, exhibited two models of Cobra, armoured wheeled vehicle designed and produced by Otokar, during IDEX 2005 in Abu Dhabi, UAE, between 12th and 17th February.

Mr. Kudret Onen, Otokar's General Manager, said; "We are proud of exhibiting the strength of Turkish Defence Industry to the world with the vehicles that are designed and produced by Otokar. Otokar has produced over 20000 soft skin 4x4 tactical vehicles and almost 1800 wheeled armoured vehicles since 1987. These vehicles are being used by nearly 15 countries all over the world."

Onen explained that Otokar possesses armoured and soft skin vehicle research and development centre with qualified engineers and technicians supported with

## Making the Best Tank Better



Abrams Fares Well in Iraq, But U.S. Army Seeks Safety Upgrades.

Fighting in conditions far removed from the north European plains for which it was designed, the Abrams tank has proved its value in the war in Iraq, according to the U.S. Army's chief of armor.

Not a single tanker has been killed by a conventional anti-tank weapon, Army Maj. Gen. Terry Tucker said. The few fatalities suffered aboard tanks have been caused by roadside bombs or small arms, he said.

Nonetheless, the Army is considering upgrades so the Abrams will prevail on battlefields for the next quarter century. Among changes under consideration for the near term are better protections for the tank's commander and loader while they fire their machine guns, and a new anti-personnel round for the Abrams' 120mm main gun. The long-term upgrades on Tucker's mind include improved armor and a new main gun.

About 4,500 troops have served on tanks in Iraq. Of those, three soldiers have been killed inside their tanks by roadside bombs. An additional 10 to 15 crew members have been killed while riding with their heads out of the hatch, standing on the tanks, or, in one case, by an insurgent who climbed onto the tank and shot down into the crew compartment, Tucker said.

"I am unaware of any case where any tanker in Iraq has been killed inside of a tank by a penetration of a tank round or RPG [rocket-propelled grenade] or any other munition," Tucker said. "It's a pretty safe place to be."

About 1,135 Abrams tanks have seen action in Iraq, Tucker said, some more than once. Of those, he said, "probably 70 percent have been hit or damaged in some way. In fact, it's hard to find an Abrams tank out there that has fought in Iraq that has not been damaged."

Eighty tanks have sustained damage that required them to be sent back to the United States for repairs, said Tucker, noting that the damage was "fairly minor" in some cases.

"If a seam or a weld was broken, that's pretty delicate work, and we couldn't do that in theater, so we've brought tanks back to the U.S. for welding repairs," he said. "About 63 of those 80 tanks will go back to the fleet."

Those figures mean that 1 percent to 1.5 percent of the tanks involved in the fight in Iraq might not return to action. "I'll take those numbers any day," Tucker said.

### A Different Fight

Tucker acknowledged that the loss of even a few Abrams tanks has come as something of a reality check

state-of-the art engineering systems which enables them to design and test their own armoured vehicles. Cobra is a very good example of Otokar's engineering capability.

Thanks to the new approach of the Defence Purchasing Body(s) in Turkey which gives more emphasis and support to local designs, and local production capabilities. All of these will lead to more business allocated to the Turkish Defences Industry during the next years.

#### Cobras for the Gulf Area

In 2004, Otokar concluded two agreements for the export of "Cobra" 4x4 armoured vehicles plus spare parts.

These orders will be delivered to the customers until the end of 2005.

During the last months of 2004 and in January 2005, Otokar received six different orders, including Cobras for the Gulf Area, for different types of military vehicles. Regarding the latest orders Mr. Serdar Gorduc, Assistant General Manager of Otokar told; "Since September 2004, Otokar has been awarded with six different orders, four of which are export agreements. Otokar has already started producing 922 vehicles consisting of 97 wheeled armoured vehicles and 825 Land Rover Defender in different types. 7,6 million USD worth of vehicles are already delivered in 2004 and 57,1 million USD worth of orders will be delivered to the customers in 2005."

#### Cobra

Otokar-Cobra is a multi functional armoured vehicle that meets the requirements of modern land forces. The common platform concept which helps training of drivers and maintenance personnel and optimizes logistic support and planning, Cobra is one of the first choices for many land forces. Cobra's multi-mission capability is reflected by various variants such as, weapons carrier, reconnaissance vehicle, personnel carrier, ambulance and the like.

#### About Otokar

Otokar, one of Turkey's strongest and most reliable automotive manufacturer, has been presenting suitable solutions to the customers requirements with its own design or products under different licences since 1963. Otokar, a Koc Group Company, now produces armoured wheeled vehicle by its own design and 4x4 tactical wheeled vehicles under licence from Land Rover, UK.

Otokar, in addition to defence products, produces minibuses and midibuses for intercity transportation and trailers in transportation sector with licence from Freuhauf.



to the armor community. In the 1991 Persian Gulf War, during which Tucker commanded a cavalry squadron, combat involved Abrams tanks engaging and destroying their Iraqi counterparts with overwhelming fire in the open desert.

“This fight’s different,” he said. “The enemy’s learned from that. And the technique that they’re using is massed fire against one tank: 14, 18, 20 RPGs — I’ve heard reports of tanks taking 50 RPG hits. It’s a new technique that they’re using, and in fact we’re having some significant damage on tanks that has to be repaired before we put them back in the fight.”

Tucker cited an Abrams with the 3rd Infantry Division (Mechanized) that took part in the first “thunder run” into Baghdad as an example. The tank was struck by 14 to 18 rocket-propelled grenades, one of which knocked out the hydraulics system so the crew had to operate the turret in manual mode. Nevertheless, the tank completed the first thunder run and then went on the second, its crew still fighting with the tank in manual mode.

“That crew refused to get off of it, because that tank couldn’t be killed,” he said.

### Early Problems

Not every Abrams was quite as resilient. Tucker estimated that the number of tanks that had to be temporarily abandoned or pulled out of the fight immediately due to combat damage was “at least 17 and probably in the 20s.”

However, no tanks have been abandoned in Iraq, he said. Even when U.S. forces needed to scuttle a damaged tank to prevent sensitive equipment from falling into enemy hands, and destroyed it with fire from another tank or called in an Air Force strike with Maverick missiles, U.S. troops retrieved the carcass and brought it back to the United States.

“That tank is designed with the ammunition separated from the crew compartment, and if the ammunition is ignited in the storage compartment, the tank is designed for the back of the turret to blow out, so the fire and the explosion goes outward, as opposed to inward, so you don’t injure or kill the crew,” Tucker said.

The general estimated that Iraqi insurgents have used a dozen different types of RPGs against the Abrams. “My concern is that in the future we’ll see more of the newer types, which are more powerful and have more capability,” he said.

But contrary to rumor, he said, there is no indication that any exotic anti-tank rounds — including foreign-made missiles such as the Milan, new versions of the RPG, or new tank main gun rounds — have been used against the Abrams in Iraq, the general said.

Meanwhile, the officials the Army pays to plot the future of the Abrams are not resting on their laurels, according to Tucker.

“We still think of the Abrams tank as the king of the fight, and I’m here to tell you that it is, but I’m also here to tell you that the Abrams tank is 25 years old,” he said.

“We’ve improved it a lot over the years ... but it’s still a 1980 tank, and we have more work to do to keep the

Abrams tank king of the battlefield for the next 25 years, because 25 years from now, when the American Army goes to fight, it will go to fight in Abrams tanks.”

In the near term, the Army has studied how the Abrams has fared in Iraq and come up with a series of improvements that it refers to collectively as the tank urban survivability kit (TUSK).

But these capabilities are not funded in the Army budget, said Maj. Chad Young, assistant product manager for M1, M1A1 and TUSK. The service has not yet finalized how much it would cost to put TUSK on each tank, Young said.

A program that is funded and will be fielded to tank units in Iraq “probably this summer,” according to Tucker, is an anti-personnel canister round for the Abrams’ 120mm main gun. Tucker refers to it as “a big shotgun round.”

Meanwhile, looking further into the future, “the Abrams tank needs to become more lethal ... [and] more survivable than it is now,” Tucker said. “It’s fairly easy to make it more lethal and more survivable,” he continued. “The challenge is going to be to do that while we try to make it lighter and more mobile.”

### Studying New Armor

To solve the mobility problem, the Army is examining new types of composite armor and electrified armor that have the potential to be lighter yet provide more protection than the composite armor package currently equipping the Abrams, according to Tucker.

In 2008, the Army will begin to field its next-generation family of combat vehicles, the Future Combat Systems. That won’t mean the end for the Abrams, which is scheduled to serve until at least 2040. In fact, the first FCS-equipped unit of action probably will include one FCS battalion and one battalion of Abrams tanks and Bradley fighting vehicles, Tucker said.

The challenge for the Army’s doctrinal community will be to figure out how the Abrams and the FCS family of vehicles will operate together, according to Tucker.

One issue that remains unsettled is what type of gun the FCS mounted combat system should have. “There’s lots of debate,” he said. “Is it 105 [mm]? Is it 120 [mm]? Is it electromagnetic? Is it a death ray? What’s that gun going to be? We’re not quite sure yet, but ... we probably ought to put the same gun on the Abrams that we’re going to have on the FCS. That would make sense.”

Having different main guns on the two systems would entail an unnecessary logistical burden, he added. “I can see some day that the gun in the Abrams tank will be more lethal than it is now, and half the size, half the weight,” Tucker said.



## Army

### Army raises enlistment age for reservists to 39

WASHINGTON -- The U.S. Army, stung by recruiting shortfalls caused by the Iraq war, has

raised the maximum age for new recruits for the part-time Army Reserve and National Guard by five years to 39, officials said today.

Reuters News Service

The Army said the move, a three-year experiment, will add about 22 million people to the pool of those eligible to serve, from about 60 million now. Physical standards will not be relaxed for older recruits, who the Army said were valued for their maturity and patriotism.

The Pentagon has relied heavily on part-time Army Reserve and Army National Guard soldiers summoned from civilian life to maintain troop levels in Iraq and Afghanistan. Roughly 45 percent of U.S. troops currently deployed for those wars are reservists.

At home, the all-volunteer Army has labored to coax potential recruits to volunteer for the Guard and Reserve as well as for active-duty, and to persuade current soldiers to re-enlist when their volunteer commitment ends.

Maj. Elizabeth Robbins, an Army spokeswoman, said the maximum enlistment age for the regular Army will remain 34. While congressional action was not needed to raise the age for the Guard and Reserve, Robbins said, Congress must approve any change for the active-duty force.

"Raising the maximum age for non-prior service enlistment expands the recruiting pool, provides motivated individuals an opportunity to serve, and strengthens the readiness of Reserve units," the Army said in a statement.

Air Force Lt. Col. Ellen Krenke, a Pentagon spokeswoman, said it was possible after the three-year test ends in September 2008 that the Pentagon may consider an enlistment age for Army reservists even older than 39.

Recruiters say the Iraq war is making military service a harder sell, and the Army has added recruiters and financial incentives for enlistment.

The Army National Guard missed its recruiting goal for the 2004 fiscal year and trails its year-to-date 2005 targets. The Army Reserve missed January and February goals and is lagging its target for 2005. The regular Army missed its target for February and trails its annual goal.

"Obviously, this decision is being made partly in response to the personnel shortfalls caused by the war in Iraq," said defense analyst Loren Thompson of the Lexington Institute.

But he said U.S. life expectancy increased by 40 percent in the 20th century, adding, "The pressure of wartime has pushed the Army to make a change that may have been overdue anyway."

"Anecdotally, our recruiters have been telling us for years that we've had people who are otherwise qualified but over the age limit who have attempted to enlist," Robbins said. "There are physically fit, health-conscious individuals who can make a positive contribution to our national defense."

The Army said the policy applies to men and women, and older recruits must meet the same physical standards and pass the same medical examination as everyone else.

"Experience has shown that older recruits who can meet the physical demands of military service generally make excellent soldiers based on their maturity, motivation, loyalty and patriotism," the Army said.

Krenke said the change was first considered last fall and approved by the Pentagon last week. She said the Marines, Navy and Air Force had not requested a similar change.

The Army Reserve is made up of federal soldiers who can be mobilized from civilian life for active duty. National Guard soldiers also serve under the control of state governors for roles like disaster relief in their home states.



## Contracts

### iRobot wins \$18 million U.S. Navy contract to deliver explosive ordnance disposal robots



It has been awarded a Naval Sea Systems Command (NAVSEA) contract worth over \$18 million to deliver its iRobot PackBot® EOD robots – explosive ordnance disposal robots – for rapid deployment in support of U.S. troops around the world. iRobot PackBot EOD robots are combat-proven and are being used daily in Iraq and Afghanistan to disarm roadside bombs and other improvised explosive devices (IEDs).

To fulfill the contract, iRobot will deliver over 150 robots to the U.S. Navy by the end of 2005.

"The rapid acquisition of small EOD robots comes in response to war fighters' requirements for technologies that protect personnel and overcome the threat posed by unexploded ordnance, mines and IEDs," said Commander Scott Stuart, EOD Program Manager, NAVSEA. "The EOD program office is working in close partnership with joint force and combatant commanders, and with industry, to deliver state-of-the-art capability, based on commercial off-the-shelf technologies that meet the demands of real-world operations."

iRobot PackBot EOD is a rugged, lightweight robot designed to assist in explosive ordnance disposal, HAZMAT, search-and-surveillance, hostage rescue and other vital tasks for military units. It can handle a full range of conventional ordnance disposal and improvised explosive devices. iRobot PackBot EOD's lightweight,

ruggedized OmniReach Manipulator System can reach as far as two meters in any direction to assess and safely disrupt difficult-to-access IEDs, military ordnance, land mines and other incendiary devices.

"iRobot PackBot EOD robots play a crucial role in helping to protect American and coalition forces from unpredictable threats in Iraq and Afghanistan on a daily basis," said Joe Dyer (Ret. U.S. Navy Vice Admiral), executive vice president and general manager of iRobot's Government & Industrial Robotics division. "This NAVSEA contract is a tremendous privilege in that it gives us the opportunity to change the calculus of battle by shifting smart, nimble machines into roles that in the past went unfilled or require human intelligence and adaptability."

"We hear new stories every week about how our iRobot PackBot EOD is saving the lives of our soldiers and otherwise immeasurably helping our troops," said Helen Greiner, chairman and co-founder of iRobot. "We build our military robots with one primary goal in mind – helping soldiers complete their missions effectively and, most importantly, safely."

Contract details were announced by the Department of Defense on March 1, 2005.

#### About iRobot Corp.

iRobot is best known in the military for setting the new standard in mobile, agile robotics for reconnaissance and other tactical applications. iRobot has a long commitment to building robotic products that make living safer and easier for people in many walks of life. Over the past 15 years, iRobot has developed and built innovative products for the military, government security agencies, law enforcement and the consumer marketplace. In 2003, co-founders Helen Greiner and Colin Angle were named Ernst & Young regional Entrepreneurs of the Year for their innovative work in technology. For additional information about iRobot, visit [www.irobot.com](http://www.irobot.com).

offers a solution for a variety of anti-tank missile threats. The TROPHY system rapidly detects and tracks the anti-tank missile threat, classifies it, estimates the optimal intercept point in space and finally neutralizes it away from the platform.

"Until recently, APS systems such as TROPHY were considered science fiction" says Dr. Eitan Yudilevich, Corporate VP Marketing and Business Development at RAFAEL. "We've made them a reality. AFVs equipped with TROPHY will benefit from improved survivability and overall effectiveness."

TROPHY is currently ready for integration onto heavy, medium and light platforms against all types of HEAT threats including all known types of Anti Tank Guided Missiles (ATGM) and Anti Tank Rockets (ATR).

RAFAEL designs, develops, manufactures and supplies a wide range of advanced defense systems for all branches of the military and Homeland Security forces. Tailored to its customer's specific needs, RAFAEL provides state-of-the-art, yet cost-effective systems and weapons in the fields of Missiles, Air Defense, Naval Systems, Target Acquisition, EW, C4ISR, Communication Networks, Data Links, Electro-Optic Payloads, Trainers and Simulators, Add-on Armor, Combat Vehicle Upgrading, Mine Field Breaching, Border and Coastal Protection Systems, UAVs and much more

#### Contracts

### BAE Systems awarded \$834 million contract for lightweight howitzer



BAE Systems has been awarded a \$834 million dollar contract for full-rate production of the M777A1 howitzer. The M777A1 is a lightweight 155mm howitzer and a critical fire support component of U.S. Marine Air Ground Task Forces and U.S. Army Stryker Brigade Combat Teams.

Under the production contract, issued by the Joint Program Office, Picatinny, New Jersey, BAE Systems will manufacture 495 howitzers over the next four years.

"This is an excellent example of transatlantic partnership," said Andrew Davies, managing director of Land Systems for BAE Systems. "We're proud of the collaborative efforts of our integrated team and pleased to provide this critical capability to satisfy current and future Army and Marine Corps requirements."

The M777A1 was designed and developed by BAE Systems in the U.K., and is a joint program between the

#### Defence Industry

### Active Protection for Armored Fighting Vehicles from RAFAEL and ELTA



Haifa, March 8, 2005 - RAFAEL Armament Development Authority Ltd., as prime contractor and ELTA Systems Group as part of the team, introduce the TROPHY Active Protection System (APS) for Armored Fighting Vehicles (AFV).

The TROPHY is a unique and advanced system that

Army and Marine Corps to replace the M198 towed howitzer. The M777A1 is the first ground combat system to make extensive use of titanium and titanium castings, which reduces the weight of the howitzer -- by 7,000 lbs. -- offering improved transportability and mobility, while retaining the full ammunition and range capability of the M198. The lightweight howitzer can be transported by Marine Corps MV-22 tilt-rotor aircraft and airdropped by C-130 aircraft.

The lightweight howitzer program is currently in low rate initial production after the company received a contract in November 2002 to manufacture 94 howitzers. The LRIP units were used during operational testing at Twentynine Palms, Calif., in October 2004. During the four-week joint Army-Marine Corps test, nearly 12,000 artillery rounds were fired by four production howitzers. The operational test verified the weapon was reliable and met or exceeded all of its operational requirements and was assessed as operationally suitable and effective by independent evaluators.

In May, the 3rd Battalion 11th Marine Regiment, located at Twentynine Palms, will be the first unit fully operational with the M777. All 94 LRIP units delivered to the Marine Corps will be upgraded with a digital fire control system (DFCS) as part of the full rate production contract.

The DFCS was developed as a pre-planned product improvement to the M777. It uses inertial navigation together with GPS and vehicle motion sensor to accurately locate and point the howitzer and digitally interfaces with the existing Army/Marines Corps fire control system. The DFCS is currently being modified to integrate the Excalibur precision-guided projectile with the M777A1. The Excalibur will give the M777A1 better than 10 meter accuracy at all ranges out to 40 kilometers. The Excalibur capability will be fielded with the Army's first operational M777A1 howitzers during 2006.

The howitzer is assembled at BAE Systems's integration facility in Hattiesburg, Miss., and incorporates components manufactured in 10 states and the U.K.

defence systems.



Klaus Eberhardt, Chairman of the Executive Board of Rheinmetall AG, described the order as "a token of the trust" placed in Europe's leading supplier of ground forces technology, adding that "it is also evidence of the good political relations which have been developing between the Emirates and the Federal Republic of Germany."

The NBC Fuchs/Fox is a highly mobile armoured transport vehicle featuring a fully equipped laboratory. Owing to its highly advanced sensor and analysis technology, it can reliably detect nuclear and chemical threats, thus enabling protective countermeasures to be taken on a timely basis.

Moreover, thanks to the integration of newly developed equipment for detecting bio weapons, the UAE order is a further affirmation of Rheinmetall's technological supremacy in this important market. For the first time, the vehicle will include a biological laboratory where weapons based on viruses, bacteria or toxins can be analyzed and identified.

Over 1,200 Fuchs/Fox systems have now been built. The NBC version of the vehicle has already proved its mettle in crisis regions around the world. Of the 260 NBC vehicles built thus far, 123 are in service with the armed forces of the United States; other user nations include Germany, the United Kingdom, the Netherlands and Saudi Arabia.

On behalf of the German Bundeswehr, Rheinmetall has also developed a mobile NBC laboratory which can be transported to the area of operations by road, rail, sea or air. The NBC field laboratory has proved highly efficient in detecting enriched uranium and radioactive waste in the former Yugoslavia.

In the realm of civil defence, Rheinmetall has thus far supplied 344 NBC detection vehicles to German fire departments, ensuring they are optimally equipped to deal with these hazards to the homeland.

## Defence Industry

### Rheinmetall to supply the United Arab Emirates with 32 Fuchs/Fox NBC armoured reconnaissance vehicles

The United Arab Emirates (UAE) has awarded Rheinmetall a contract to supply 32 Fuchs/Fox NBC armoured reconnaissance vehicles. The seal was set to the agreement on March 5, 2005 during a state visit of German Chancellor Gerhard Schroeder in Abu Dhabi.

The order is worth around EUR 160 million. Thanks to its subsidiary Rheinmetall Landsysteme GmbH of Kiel, the Rheinmetall Group is one of the world's leading manufacturers of tracked and wheeled armoured vehicles, as well as a top specialist in the field of NBC

## Defence Industry

### India will rebid artillery gun buy

The Indian government will rebid the \$1.54 billion purchase of 280 155mm self-propelled tracked and wheeled artillery guns in two to three months, Ministry of Defence (MoD) sources said.

Officials with the ministry and the artillery directorate

objected to the acquisition process used by the previous National Democratic Alliance government.



In the last three months, artillery officials have complained that the use of a single vendor, South Africa's Denel, has elevated the price of each gun to about \$5.5 million, sources said. In 2000, Russia's Rosoboronexport offered to sell India 155mm MSTA 52-caliber guns for about \$2.2 million apiece, but India declined even to subject the guns to formal trials.

An MoD source said the brushoff, which irked Moscow, is among the reasons that no arms sales were agreed during Russian President Vladimir Putin's November visit here — the first such visit that failed to produce a deal.

A Rosoboronexport executive did not specifically comment on this but admitted that Russia is concerned that its Indian market may shrink.

India is negotiating to buy Smerch multibarrel rocket launchers, Tu-22 backfire bombers and nuclear submarines from Russia, but Russia so far has not formally agreed to a sale.

India plans to acquire around 1,600 155mm guns for its artillery regiments in the next 15 years.

The MoD official said 100 155mm self-propelled tracked guns are being acquired. For a year, the Army has been testing guns from Bofors successor Swedish SWS Defence, Israel's Soltam Systems and Denel.

But only Denel is being considered for a batch of 180 155mm self-propelled wheeled guns, a program in limbo since 2002.

Retired Army Maj. Gen. Mahindra Singh said the controversy must be resolved to allow India to get a good price on foreign-made guns.

#### Streamlining the Arsenal

The 155mm guns will streamline logistics and operations by replacing older, worn-out weapons of other calibers. The list includes 1980s-vintage 155mm FH 77B Bofors guns and many older Soviet weapons, including 130mm guns, 122mm Grad Multiple Launch Rocket Systems, 105mm Indian field guns, 105mm Indian light guns and 100mm anti-tank guns.

India decided to go with 155mm guns after their decisive role in the 1999 Kargil battle with Pakistan, an artillery official said.

#### Contracts

### General Dynamics Awarded Defense Contracts Valued at \$16 Million

FALLS CHURCH, Va. - Three General Dynamics business units - General Dynamics Land Systems, Sterling Heights, Mich.; General Dynamics C4 Systems, Taunton, Mass.; and General Dynamics Advanced Information Systems, Suffolk, Va. - yesterday were awarded U.S. Department of Defense contracts worth more than \$16 million.

General Dynamics Land Systems was awarded a \$6 million modification to a cost-plus-fixed-fee contract from the U.S. Army Tank-Automotive and Armaments Command, Warren, Mich., for systems technical support (STS) for the Abrams tank program. STS allows the change-out of obsolete parts and keeps the Abrams tanks current to their base configuration.

The main objective of STS is to keep the tanks running at high operational readiness rates. Work under this contract will be performed at General Dynamics Land Systems headquarters in Sterling Heights, Mich., and is expected to be completed by July 31, 2006. This was a sole source contract initiated in November 2001. General Dynamics C4 Systems was awarded a \$500,000 increment as part of a \$140 million cost-plus-fixed-fee contract (initiated in January 2005) for cyclic and catastrophic overhaul of up to 300 Mobile Subscriber Equipment (MSE) Battlefield Communications Shelters.

Work will be performed in Taunton, Mass., and is expected to be completed by March 30, 2010. The U.S. Army Communications-Electronics Command, Fort Monmouth, N.J., is the contracting activity. General Dynamics Advanced Information Systems was awarded a \$10.3 million cost-plus-fixed-fee task order for services in support of the U.S. Joint Forces Command's Joint Experimentation Program and Joint Futures Lab. Work will be performed in Suffolk, Va., and is expected to be completed by July 2005. The Fleet and Industrial Supply Center Norfolk Detachment Philadelphia is the contracting activity.

This task order is part of a \$479 million contract originally awarded in July 2004. General Dynamics, headquartered in Falls Church, Virginia, employs approximately 70,200 people worldwide and had 2004 revenue of \$19.2 billion. The company is a market leader in mission-critical information systems and technologies; land and expeditionary combat systems, armaments and munitions; shipbuilding and marine systems; and business aviation.

#### Contracts

### DRS TECHNOLOGIES awarded \$49 million contract to upgrade key targeting system of U.S. Army Bradley fighting vehicles

Parsippany, NJ, March 29 - DRS Technologies, Inc. (NYSE: DRS) announced today that it has received a contract valued at approximately \$49 million to

provide Improved Bradley Acquisition Subsystems (IBAS) for the U.S. Army's Bradley A3 vehicle program.



The Bradley Fighting Vehicles are among the most formidable ground force capabilities in U.S. Army inventory and continue to be an integral part of the military's operations in Iraq. The IBAS enables vehicle gunners to detect, identify and engage tactical targets at dramatically greater operational ranges, increasing ground force survivability and target lethality.

The contract was awarded to DRS by the Ground Systems Division of United Defense Industries, Inc. (NYSE: UDI), the prime contractor for the development and production of the Bradley. For this order, DRS will produce, test and provide support services for the IBAS, which includes the Target Acquisition Subsystem (TAS) and Missile Control Subsystem (MCS). This order also will include the new U.S. Army Block 1 B-Kit – a Second Generation Forward Looking Infrared (SG FLIR) system developed as part of the Army's Horizontal Technology Integration (HTI) initiative.

Work for this award will be accomplished by the company's DRS Optronics unit in Palm Bay, Florida. Product deliveries are expected to commence this October and conclude in July 2006.

"This latest award underscores DRS's position as a major supplier to the Bradley Fighting Vehicle program and as a leading provider of fire control solutions to Army ground combat platforms," said Fred L. Marion, president of DRS's Surveillance and Reconnaissance Group. "This new contract supports our reputation as a proven, world-class fire control systems producer and highlights our customer's regard for our strong, long-term performance on this program. The leading edge sighting system technologies that are being incorporated in IBAS are critical to the Bradley A3, providing increased target acquisition performance, greater stand-off ranges and improved survivability for our ground forces. DRS remains committed to providing superior systems that play a crucial role in the digital battlefield."

The Bradley A3 is the Army's most advanced, integrated digital ground system, providing outstanding survivability, mobility and lethality to soldiers in all types of close-combat urban scenarios or in open combat desert warfare.

IBAS enhances lethality through automated ballistics solutions and target tracking software. Using Standard Advanced Dewar Assembly (SADA) II technology, IBAS incorporates the HTI Second Generation Block 1 B-Kit FLIR, direct view optics, dual-aided target tracking capability, eye-safe laser range finder capability,

a daylight television, and a two-axis stabilized pointing head mirror assembly. Other IBAS system improvements include enhanced shoot-on-the-move capability for the Bradley 25mm gun.

DRS Technologies, headquartered in Parsippany, New Jersey, provides leading edge products and services to defense, government intelligence and commercial customers. Focused on defense technology, DRS develops and manufactures a broad range of mission critical systems. The company employs 5,800 people worldwide.

