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EOS NEW WEAPON SYSTEMS SET NEW PERFORMANCE RECORDS

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Electro Optic Systems Pty Ltd (ASX: EOS) has announced two developments that will open up opportunities for the supply of weapons and defence systems to meet a growing demand to increase the firepower of armoured infantry vehicles.

The company has completed significant testing milestones of two new weapon systems. The systems, first revealed at the Army USA Show in Washington DC (21-23 October 2013) are:

1. ***Remotely Operated Turret for 30-40 mm cannon***. This product is a new category of high performance turret, intended to deploy the Orbital ATK Mk44 30-40 mm cannon. The turret is lightweight at just 1300 kg and allows precision engagement from a moving vehicle to targets beyond 4 km.
2. ***R-400S Remote Weapon System***. This is an upgraded version of EOS's R-400 [CROWS] RWS. It enables deployment of the Orbital ATK M230LF 30mm cannon in a lightweight 400kg system, allowing precision engagement from a moving vehicle to targets beyond 2 km.

According to EOS CEO, Dr Ben Greene, the two new products meet a growing demand for increased firepower across the entire range of next-generation combat vehicles, both tracked and wheeled. The EOS products set new benchmarks for firepower while, importantly, offering significantly reduced weight.

Both products have now successfully completed major qualification processes, in each case spanning two years of testing.

Remotely Operated Turret for 30-40 mm cannon

The EOS remote turret was developed through a 5-year, $26 million collaboration. It is based on EOS ballistic fire control and stabilisation technologies which have been refined over 25 years of development and many operational programs with US, NATO and coalition forces.

The turret is designed to use the Orbital ATK Mk44 cannon in either 30mm or 40 mm configuration. This weapon is highly regarded for its reliability and accuracy, and is in widespread use today. Turret performance testing was completed in mid-2014 with all performance benchmarks set by potential customers satisfied, including engagement accuracy.

Since mid-2014 the turret has undergone further extensive testing by EOS and third parties to establish its reliability in operational conditions. These tests have identified no issues that would prevent the turret meeting the in-service expectations of customers.

With the completion of performance and reliability testing, the EOS turret is ready for production orders.

The turret can be configured with a wide range of performance and capability options for various roles. A standard configuration includes coaxial machine gun, commander's sight, and surface-to-surface missile capability. Other variants include active vehicle protection, under-armor reloading, thru-turret crew situation awareness, a commander's weapon system and increased ballistic protection.

The turret can be optioned for demanding requirements such as the Australian Army LAND 400 program, or fielded in a basic configuration which still delivers extremely accurate 30 mm firepower.

Regardless of the configuration, the turret does not protrude into the vehicle cabin space, and the number of infantry or amount of cargo carried in the vehicle is not reduced by adding the turret. The EOS turret is shown in the picture below.

EOS Remote Turret for 30-40 mm Cannon

According to Dr Greene, "testing shows the new EOS remote turret meets customer standards for accuracy, weight and reliability. We expect to be among the first to market with mature products, and we are already working closely with customers."

"Initially, we expected the initial market for this turret to be armoured vehicles requiring weapon system upgrades, but the market has expanded to include new vehicles which are now being fielded without weapons because the escalating firepower requirements of the new battlefield have rendered their originally-planned weapon systems inadequate."

R-400S Remote Weapon System

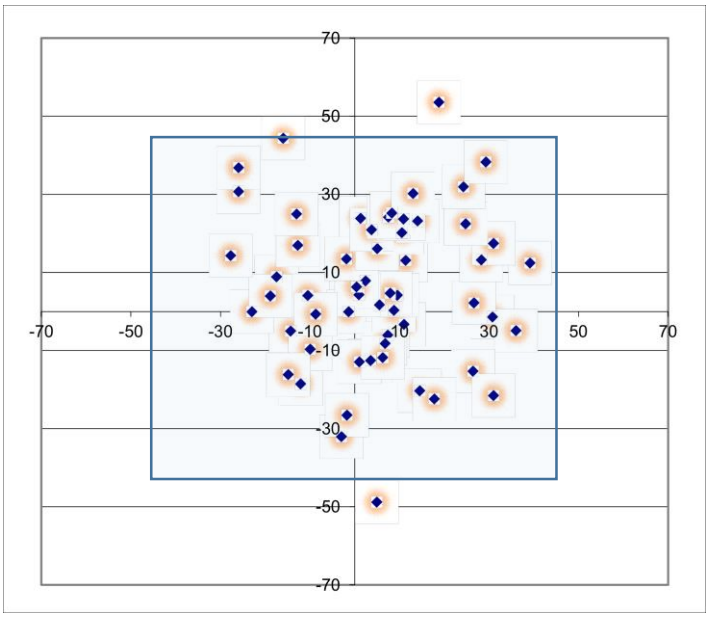
The EOS R-400 remote weapon system family has already been produced in significant numbers, deployed on 20 different vehicles, adapted to more than 20 different weapons, and seen active service in multiple theatres with US, NATO, Australian and other coalition forces.

The most recent R-400 variant (R-400S) was developed with the support of the Australian Government's Priority Industry Capability Innovation Program (PICIP) run by the Defence Materiel Organisation (DMO). PICIP provided EOS with grant funds in 2013 to help commercialise innovative defence technology. The R-400S has been specifically developed to provide precision engagement at long ranges generally beyond the reach of conventional remote weapon systems deploying weapons such as 12.7mm and 7.62 mm machine guns.

A focus of development for the R-400S has been the Orbital ATK M230LF 30mm cannon. The M230LF is an improved version of the 30mm cannon featured on the Apache helicopter and has been optimized for use on vehicle and naval platforms. It is a member of the Chain Gun® family of externally powered, combat reliable conventional automatic weapons.

The R-400S with M230LF delivers high hit probability on a moving target from a moving weapon platform, at ranges exceeding 2,000m. The accuracy achieved by EOS's R-400S with M230LF at all ranges is twice as high as any other 30mm weapon system weighing less than 900 kg. Since the EOS 30mm solution weighs only 450kg (including 250 rounds of ammunition), the system delivers twice the accuracy at half the weight of any other system.

This performance has been tested on various vehicles and under a range of climate conditions. Some unclassified results from recent operational testing monitored by observers from 3 countries are shown below. This graphic represents the results from firing 60 rounds in both single-shot and burst mode, and from 7 different positions including 6 separate moving 4x4 engagements. More than 96% of all shots hit the [blue square] NATO standard vehicle target.



60 rounds at 1,000m [scale in inches] with >96% hits

The demonstrated performance represents a significant leap ahead in firepower for light combat vehicles. Most basic 4x4 military vehicles can serve as a platform for a weapon system of only 450 kg and the R-400S has already been fired from vehicles ranging from 6-28 tonnes. Most recently, the R-400S with M230LF has been demonstrated on the Oshkosh MRAP All-Terrain Vehicle [M-ATV].

The M-ATV is a next-generation 4x4 vehicle with exceptional off-road mobility and crew protection capabilities. Its stability and suspension travel make it an ideal platform for a wide range of weapon system applications. After only one day of integration of the R-400S with the M-ATV excellent results were achieved, including 96% hit rate at 1,000m from both moving and stationary firing positions as described above.

"This accuracy from a remote weapon system is unprecedented," added Dr. Greene.

“Achieving full performance after just one day of integration of the R-400S and M230LF for the first time with M-ATV indicates the maturity of the weapon, weapon system and vehicle.

"The R-400S remote weapon system with M230LF offers a combination of size, weight, performance, firepower and price that establishes a new benchmark for a wide range of combat applications," Dr. Greene added.

R-400S with ATK M230LF 30mm cannon mounted on Oshkosh M-ATV

High speed photograph of M230LF firing bursts from M-ATV

The most common vehicle in use by the US Army is the HMMWV. The HMMWV vehicle will be phased out of US Army service over the next 20 years, but it is lighter and much less rigid than any replacement vehicle will be, and therefore provided an ideal, worst-case test platform for this weapon system.

R-400S with ATK M230LF 30mm cannon mounted on HMMWV

High speed photograph of M230LF firing from R-400S on HMMWV

The R-400S has been extensively tested on this vehicle over two years, and with excellent results. HMMWV testing was completed during 2014.

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About ELECTRO OPTIC SYSTEMS (ASX: EOS; OTC: EOPSY)

EOS is an aerospace company which develops and produces products incorporating advanced electro-optic technologies for the global aerospace market. EOS products are based on core technologies in software, lasers, electronics, optics, gimbals, telescopes, beam directors, optical coatings, precision mechanisms and highly ruggedized assemblies.

EOS employs around 120 staff operating from facilities in Australia, Singapore, Germany and the US. EOS operations are divided in two sectors: **Space Systems** and **Defence Systems**.

Defence Systems

EOS is a key global supplier in the market for remotely weapon systems [RWS] and autonomous military surveillance and combat systems.

Over 1,000 RWS from EOS have been sold or deployed through US, NATO, Australian and other forces. Product configurations sold have been for naval weapon systems, armoured vehicle turrets and remote controlled mobile weapon systems. EOS is a major development centre for RWS users globally.

The Company's RWS product family is based on a common module set and fully-qualified fire control software. Modules include high resolution cameras, thermal vision, image processing, ruggedized computers, lasers, sensor systems and power management systems, all qualified for the harsh military environment. Around 90% of all EOS research and development for RWS is performed in Australia.

Space Systems [SSA]

The EOS space Systems sector focuses on both commercial and defence requirements for space information, including space situation awareness. EOS specializes in obtaining space information using EOS-developed optical instruments and sensors to detect, track, classify and characterise objects in space. This information is required for both military and commercial space applications.

About OSHKOSH DEFENSE

Oshkosh Defense is a leading provider of tactical wheeled vehicles and life cycle sustainment services. For decades Oshkosh has been mobilizing military and security forces around the globe by offering a full portfolio of heavy, medium, light and highly protected military vehicles to support our customers' missions. In addition, Oshkosh offers advanced technologies and Oshkosh Defense is a leading provider of tactical wheeled vehicles and life cycle sustainment services.

For decades Oshkosh has been mobilizing military and security forces around the globe by offering a full portfolio of heavy, medium, light and highly protected military vehicles to support our customers' missions. In addition, Oshkosh offers advanced technologies and vehicle components such as TAK-4® independent suspension systems, TerraMax® unmanned ground vehicle solutions, Command Zone™ integrated control and diagnostics system, and ProPulse® diesel electric and on-board vehicle power solutions, to provide our customers with a technical edge as they fulfill their missions.

Every Oshkosh vehicle is backed by a team of defense industry experts and complete range of sustainment and training services to optimize fleet readiness and performance. Oshkosh Defense, LLC is an Oshkosh Corporation company [NYSE: OSK].

To learn more about Oshkosh Defense, please visit us at www.oshkoshdefense.com.

About OSHKOSH CORPORATION

Oshkosh Corporation is a leading designer, manufacturer and marketer of a broad range of access equipment, commercial, fire & emergency, military and specialty vehicles and vehicle bodies. Oshkosh Corporation manufactures, distributes and services products under the brands of Oshkosh®, JLG®, Pierce®, McNeilus®, Jerr-Dan®, Frontline™, CON-E-CO®, London® and IMT®.

Oshkosh products are valued worldwide by rental companies, concrete placement and refuse businesses, fire & emergency departments, municipal and airport services and defense forces, where high quality, superior performance, rugged reliability and long-term value are paramount. For more information, visit www.oshkoshcorporation.com.

About ORBITAL ATK

As a global leader in aerospace and defense technologies, Orbital ATK designs, builds and delivers space, defense and aviation-related systems to customers around the world both as a prime contractor and as a merchant supplier. Our main products include launch vehicles and related propulsion systems; satellites and associated components and services; composite aerospace structures; tactical missiles, subsystems and defense electronics; and precision weapons, armament systems and ammunition.

Headquartered in Dulles, Virginia, Orbital ATK employs more than 12,500 people in 20 states across the U.S. and several international locations.

Our company is comprised of three operating groups: Flight Systems Group, Defense Systems Group and Space Systems Group. The Defense Systems Group is home to the Armament Systems Division which manufactures the M230LF chain gun it is:

- An industry leader in propulsion and controls for air-, sea- and land-based tactical missiles and missile defense interceptors, fusing and warheads for tactical missiles and munitions.
- Supplier of advanced defense electronics for next-generation strike weapon systems, missile-warning and aircraft survivability, and special-mission aircraft.
- Leading producer of medium- and large-caliber ammunition, medium-caliber gun systems and precision munitions guidance kits.
- Largest U.S. producer of small-caliber ammunition."