

# Jane's

DPA Publisher of the Year 2010

# DEFENCE WEEKLY

## Bushwhacking on a budget

**Aerosud's AHRLAC breaks the mould**



- **Assessing US armoured vehicle programmes – p38**
- **The resurgence of lighter-than-air vehicles – p45**

The background of the advertisement is a silhouette of a tank, likely an Abrams, set against a bright, hazy sunset or sunrise sky. The tank's main gun barrel is prominent, extending horizontally across the middle of the frame. The overall color palette is dominated by warm, golden-yellow and orange tones from the sky, contrasting with the dark black silhouette of the tank.

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## On the cover

South Africa's Paramount Group has teamed with Aerosud to develop the Advanced High-Performance Reconnaissance Light Aircraft (AHLRAC) (see page 10).

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## Online this week

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Qatar received the four Lockheed Martin C-130J-30 Hercules transport aircraft it ordered in July 2008 during a ceremony at the company's Marietta, Georgia, production facility on 28 September.

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- Shenyang unveils subscale delta-wing UCAV model
- UK MoD launches first tranche of navy personnel cuts

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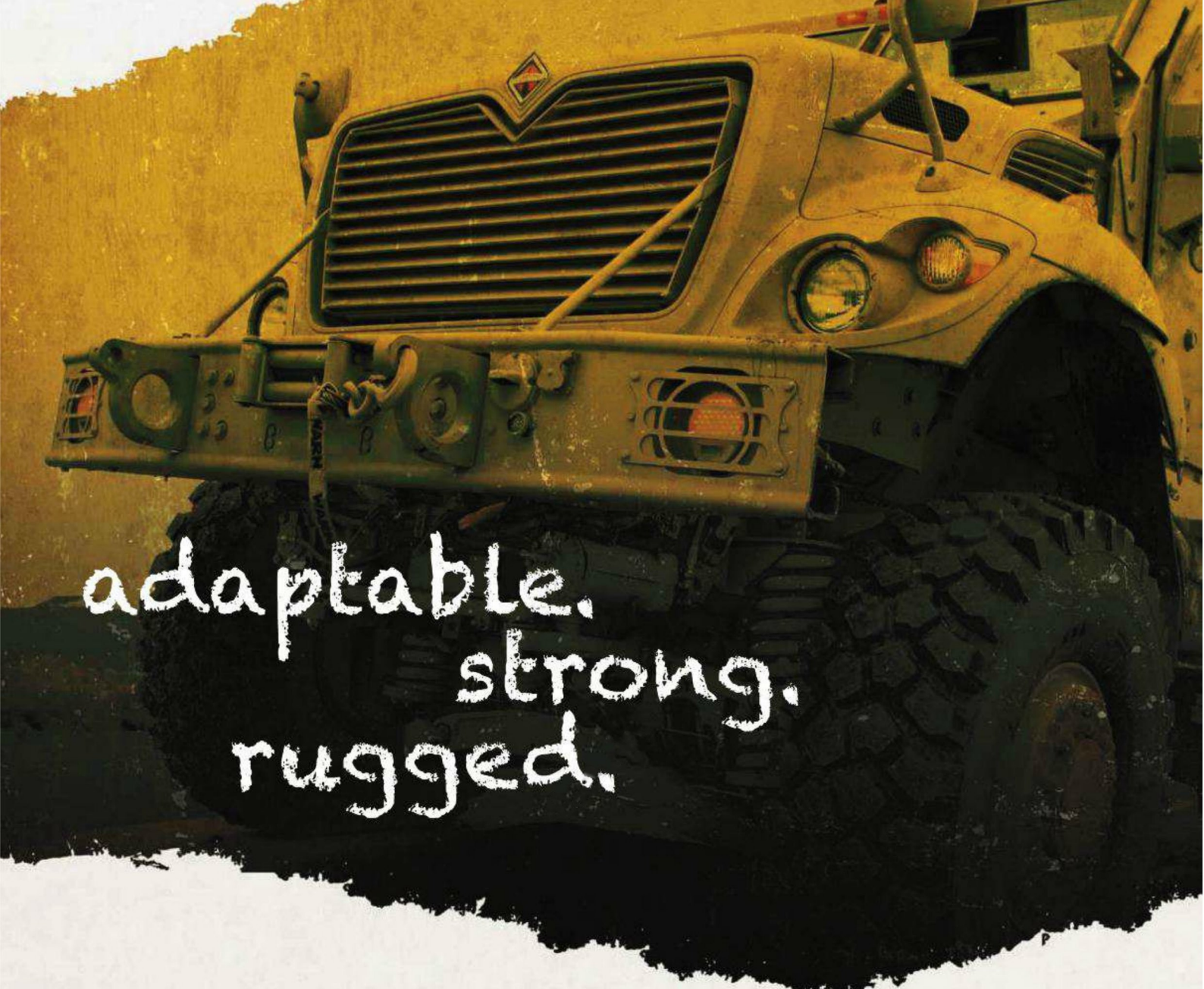


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# HEADLINES

## Iraq agrees \$3bn deal with US for 18 F-16s

MARINA MALENIC *Jane Aviation Reporter*  
Washington, DC

**Iraq has agreed to buy 18 Lockheed Martin F-16 Fighting Falcon combat aircraft in a deal worth about USD3 billion, US government and industry officials said on 27 September.**

“The aircraft will help provide air sovereignty for Iraq to protect its own territory and to deter or counter regional threats,” said Pentagon Press Secretary George Little.

Laura Siebert, a Lockheed Martin spokeswoman, confirmed that the two governments had agreed on the sale of advanced export-model Block 52 F-16s. The sale is expected to extend the production line at the company’s Fort Worth, Texas, factory into 2015.

Oman has also inquired about the possible procurement of 12 F-16 Block 50/52s, adding potential for

- Iraq will buy 18 Lockheed Martin F-16 Fighting Falcon aircraft in a USD3 billion deal, the US government has said
- The deal will include training for Iraqi pilots

up to another two years of work at the factory. Deliveries to Iraq are scheduled to begin in 2014, accord-



Iraq has ordered 18 of Lockheed Martin’s export-model **Block 52 F-16**, shown here being flown by the Pakistan Air Force.

Pakistan Air Force: 1401252

### ANALYSIS

**Iraq’s arms procurement from the US is likely to bolster the two country’s military-to-military relationship, but the strategic basis for the F-16 acquisition remains unclear.**

Mustafa Alani, director of security and defence studies at the Gulf Research Council, told *Jane’s* on 29 September that the Iraqi government does not have a clear picture of why the aircraft are needed. He said that some in the Iraqi parliament envision the aircraft as purely for surveillance and reconnaissance, while others are seeking to build a strong air force.

In August Major General Jeffrey Buchanan, director of strategic effects for US Forces-Iraq (USF-I), deferred questions about Iraq’s external threats to the Iraqi Ministry of Defence, where representatives

could not be reached for comment.

Noel Clay, a US State Department spokesman, told *Jane’s* that, like all arms transfers, the F-16 sale was assessed by his department with “consideration of regional threats and security issues”. In a 28 September email he said: “The case was reviewed under the Conventional Arms Transfer Policy, which includes consideration of the appropriateness of the item for the defence needs of the recipient and the effects [of the transfer] on regional stability.” However, Clay added that he is “not aware of a ‘special review’ of threats for this particular sale”.

*Jane’s* understands that the Iraqi government has not conducted an overall strategic review to inform its force sizing or the specific capabilities the country wants to acquire. Sources said that such a review would be difficult for the nascent government to conduct as its factions would have trouble agreeing on

ing to Lockheed Martin. Both US government and industry sources declined to comment on the configuration of the aircraft, including potential armaments.

The F-16 deal has been in the works since August 2008, when Iraq first submitted a request for information on the supply of 36 F-16s. Baghdad formally reduced its request from 36 aircraft to 18 in September 2010. In a notification of the requested sale to the US Congress at that time, the Defense Security Co-operation Agency (DSCA) said that the proposed sale was valued at approximately USD4.2 billion.

In February Baghdad shelved the plan entirely to allocate funds to domestic priorities. The discussions were revived in July, however. The package for the 18 F-16s includes training for Iraqi pilots, according to a US official, who declined to specify where that training would take place.

what the external threats are or how best to address them.

The ‘Arab Spring’ could change the calculus across the Middle East, but other potential threats to Iraq could include Syria or Turkey clamping down on Iraq’s water sources or the ongoing battle between the Kurdistan Workers Party (PKK) and Turkey, which is taking place on Iraqi territory. Meanwhile, Iran is still seen as a threat by many in Iraq due to its political connections with Muqtada al-Sadr’s party and the country’s contentious history (Iraq and Iran were at war between 1980 and 1988).

Alani noted that the wider Middle East appears uneasy with such arms sales as many in the region still remember the Iraqi military’s aggressive posture in the 1980s and 1990s during the regime of Saddam Hussein.

**Daniel Wasserbly** *JDW Senior Americas Reporter, Washington, DC*

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## HEADLINES

# Military aerospace job cuts mount

MATTHEW BELL & NICHOLAS DE LARRINAGA *Jane's Industry Reporters*  
London

**B**AE Systems and Lockheed Martin have announced military aerospace job cuts totalling 3,500 in the UK and US, marking the latest efforts by Western majors to cut payrolls in the face of declining defence spending and slower orders for large-scale air platforms.

BAE Systems said on 27 September that it will look to lay off 2,942 workers across its UK operations, mainly affecting its Military Air & Information (MAI), Shared Services and head office operations. In total 14 locations are affected within the UK, with limited job losses across the company's wider international operations. The group's factory in Brough is set to lose 899 employees – 70 per cent of its workforce – while Warton

- BAE Systems has announced 2,942 job cuts in the UK, while Lockheed Martin will lay off 540 workers in the US
- Declining defence spending and slower orders for large-scale air platforms are blamed for the cuts

will shed 843 jobs (13 per cent) and Samsbury 565 (14 per cent).

A lower-than-expected increase in F-35 production rates, slowed Typhoon production and decreased workload relating to the UK's Tornado and Harrier aircraft were all cited by the company as driving the workforce retrenchment. The Harrier was scrapped by the UK Strategic Defence and Security Review of 2010, while the UK also started slimming its Tornado inventory this year ahead

of the fleet being retired in 2012.

BAE Systems told *Jane's* that Eurofighter production was being slowed by almost half across the Eurofighter consortium, from 60 per year to 35 by 2012. The group carries a 37 per cent workshare on the Eurofighter programme in conjunction with EADS (44 per cent) and Finmeccanica's Alenia (19 per cent).

BAE Systems Chief Executive Ian King said: "To ensure we remain competitive we need to reduce the overall costs of our businesses in line with our reduced workload."

Meanwhile, Lockheed Martin said on 26 September that it would cut 540 jobs at its US operations in Marietta, Georgia, and Palmdale, California, under previously disclosed plans to reduce its aero-

nautics workforce by 1,500 by the end of 2011. Lockheed Martin announced in June its intention to reduce the aeronautics workforce, which currently employs about 28,000 people, citing a new "operational efficiency plan" intended to improve the affordability of its products.

In June research and development funding for the Lockheed Martin-led F-35 Lightning II Joint Strike Fighter (JSF) – one of the group's key programmes – faced a proposed cut of USD75 million when the House of Representatives Committee on Appropriations passed its version of the Fiscal Year 2012 (FY12) defence spending bill. However, the proposal fully funded a procurement request for 32 aircraft under a spending bill that cut nearly USD9 billion from President Barack Obama's USD658 billion Pentagon budget

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## US seeks to halve ANSF funding by 2014

The US government is looking to halve the funding it provides to the Afghan security forces as pressure to reduce US federal spending grows.

Lieutenant General William Caldwell, commander of the NATO Training Mission - Afghanistan (NTM-A) and Combined Security Transition Command - Afghanistan, told reporters on 26 September that "the long-term sustainable cost" for the Afghan National Security Forces (ANSF) is about USD6 billion a year.

Gen Caldwell believes the 352,000-strong ANSF can be sustained for "significantly lower than that", but did not provide an estimate.

The Pentagon requested USD12.8 billion in the Fiscal Year 2012 to build and sustain Afghanistan's security forces, but in early September it emerged that the White House was seeking to cut that figure by more than half by 2014.

In testimony to Congress on 22 September Secretary of Defense Leon Panetta and Chairman of the Joint Chiefs of Staff Admiral Mike Mullen both indicated that USD12.8 billion was not an acceptable or realistic amount to spend on the fledgling ANSF.

Gen Caldwell expects "the level of insurgency to go down" – although he did not explain why – and said that if violence in Afghanistan decreases, then the ANSF can reduce their total personnel and thereby reduce some costs. He also noted that specific efforts are under way to find ways in which the ANSF can be trained and equipped more affordably.

Major General Peter Fuller, NTM-A's deputy



The US believes the long-term sustainable cost for the **Afghan National Security Forces** is about USD6 billion a year.

AP: 1440885

commander for programmes, told reporters on 13 September that funds could be saved by cutting back on items the Afghan forces were slated to get but do not necessarily need, such as mobile field kitchens for expeditionary operations or Western-style sinks and toilets.

Once the ANSF is trained and outfitted, Gen Caldwell hopes some of the force's "long-term sustainment costs" can be covered "collectively from the international community, the US and the Afghans themselves". Gen Fuller said that the US currently accounts for more than 90 per cent of these costs.

**Daniel Wasserbly** *JDW Senior Americas Reporter, Washington, DC*

## India prepares for MMRCA decision

India's Defence Acquisition Council will meet on 7 October to finalise details concerning the procurement of 126 medium multirole combat aircraft (MMRCA) ahead of inking a contract for the Eurofighter Typhoon or Dassault Rafal by the year's end, officials have said.

Air Chief Marshal NAK Browne said on 22 September that once the council "cleared up pending MMRCA issues" – on which he declined to elaborate – the competing bids would "hopefully" be opened by mid-October.

Ministry of Defence (MoD) officials said this would be followed by price negotiations with the selected manufacturer. Aviation industry officials warned that if the MoD was unable to begin negotiations by December 2011, the MMRCA contenders' commercial bids would expire.

The Indian Air Force (IAF) wants to induct the first MMRCA by 2015, with 18 aircraft to be acquired in a 'fly-away' condition within 36 months of the contract being signed.

**Rahul Bedi** *JDW Correspondent, New Delhi*

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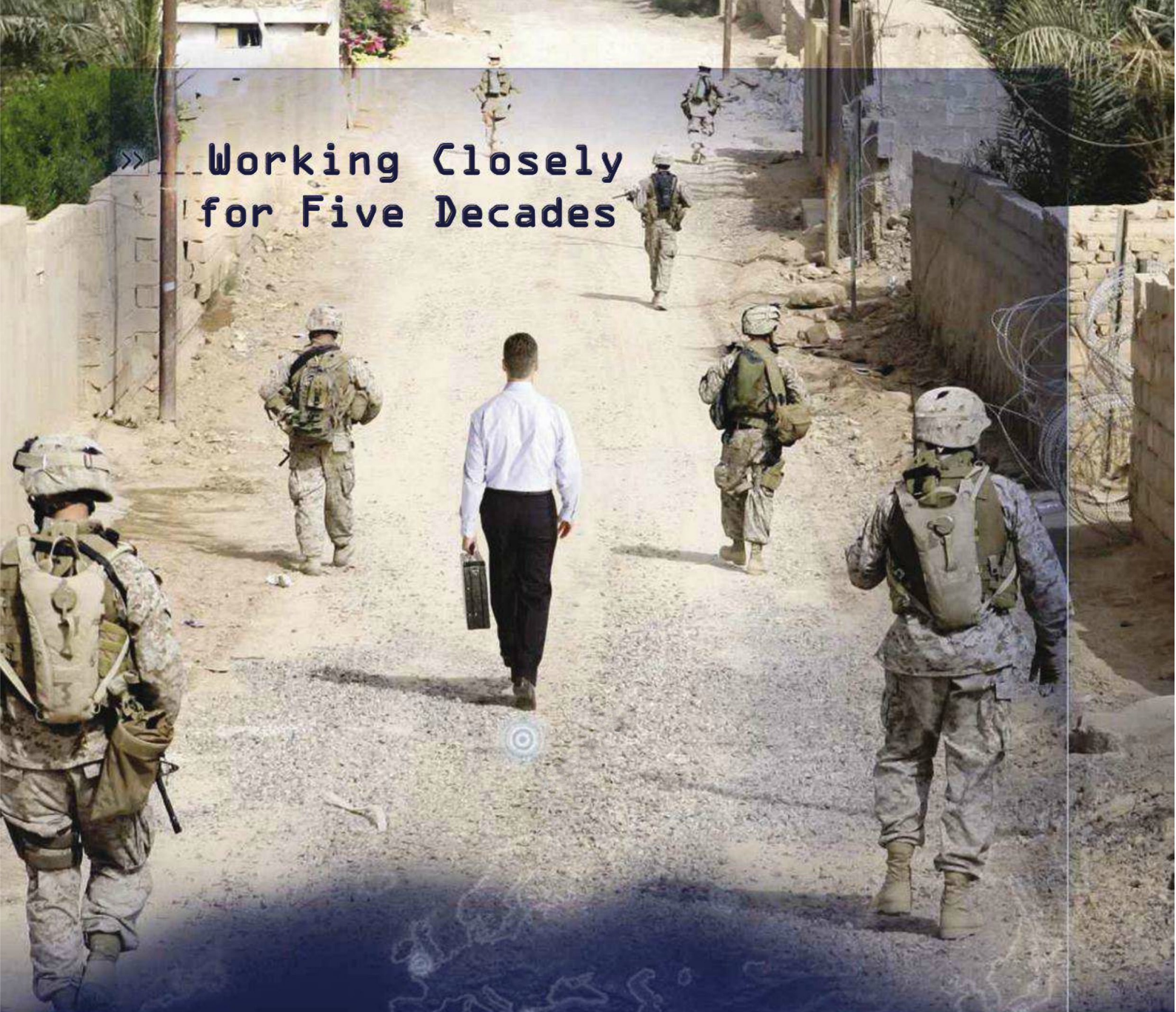
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## HEADLINES

# Typhoon, Super Hornet and JSF join Japan race

JON GREVATT *Jane's Asia-Pacific Industry Reporter* Bangkok  
 JAMES HARDY *JDW Asia-Pacific Editor* London

**B**AE Systems, Boeing and Lockheed Martin have met a 26 September deadline to submit bids for Japan's F-X fighter aircraft programme, which will replace the Japan Air Self-Defence Force's (JASDF's) 1970s-era McDonnell Douglas (Mitsubishi) F-4EJ Kai fleet.

The three companies confirmed to *Jane's* that they had complied with a request for proposals that was made in April. BAE Systems is leading the Typhoon bid for the Eurofighter consortium, with support from the UK government and Japan's Sumitomo Corporation, a global trading company. Boeing is offering its F/A-18E/F Super Hornet Block II in conjunction with the US Navy, while Lockheed Martin is offering the F-35A Lightning II Joint Strike Fighter (JSF) in conjunction with the US Air Force.

In a comment that seemed to

- BAE Systems, Boeing and Lockheed Martin have put forward bids for Japan's F-X fighter aircraft programme
- The winner will be announced in late 2011 or early 2012

touch on the importance of a US alliance to Japan, John Balderston, Lockheed Martin's Director of the Japan F-35 Campaign, said the F-X selection had "strategic importance ... and long-term significance". "The fifth-generation F-35 represents the pinnacle of fighter aircraft development. It will be the US and key allies' front-line fighter for the 21st century," he said.

Boeing Japan President Mike Denton said the Super Hornet would promise "guaranteed pricing and a guaranteed delivery timeline, while equipping the JASDF with a superior multi-role capability for the defence of Japan". He added that

Boeing was well placed to fulfil the F-X programme's requirement for industrial collaboration.

Boeing's F-X campaign manager in Japan, Phil Mills, told *Jane's* in August 2010 that the company would be well served by its previous work with Japanese companies that license-produced more than 100 Boeing F-15s in the 1980s and more than 100 McDonnell Douglas F-4s in the 1970s.

"What we are offering Japan for F-X is licensed production of most of the aircraft," said Mills. "Japan clearly thinks licensed production is important."

Eurofighter is promising to hand over source code and "sovereign control" of the Typhoon's manufacture, according to a statement that reiterated comments by officials to *Jane's* earlier in 2011 that Japan would become "part of the Eurofighter family" if it opted for the Typhoon.

Nigel Whitehead, BAE Systems Group Managing Director - Programmes and Support, also emphasised the importance of having "the most capable deterrent to regional threats": a sideways reference to a substantial increase in incursions into Japanese airspace in recent years.

Japan is expected to procure 40 aircraft at a cost of around USD4 billion, with a decision due in late 2011 or early 2012 and deliveries expected from 2015-16. ■

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## NATO goes 'off message' over Libya mission

**NATO launched its mission against Libya and Moammar Gaddafi primarily to protect NATO's own territory and population against external threats – and not just to shield the people of Libya from attack, NATO Secretary General Anders Fogh Rasmussen admitted in remarks after a formal speech in Brussels on 30 September.**

"NATO's core function remains the territorial defence of our populations and territory, and it will remain so. However, we have to realise that in today's world, the defence of our borders starts beyond our borders," he said, referring to the alliance's UN-mandated 'Unified Protector' mission in Libya.

NATO's official declarations since the launch of 'Unified Protector' in late March have undeviatingly stressed – to the exclusion of any other policy interpretation – that the alliance's sole reason behind its mission was to protect Libya's civilian population from attack by either pro- or anti-Gaddafi forces.

*Jane's* asked Rasmussen whether the UN and NATO have thus set a precedent in Libya for unilateral humanitarian intervention across the world – and if not, then what was the non-humanitarian rationale behind 'Unified Protector'?

His response was as follows: "You can call it humanitarian intervention, but I wouldn't explain it that way. It is about the defence of NATO and its allies. That will be the guiding principle for taking on operations in the future: that they serve [the defence] of our territories and population. And it may well be out of our area," he said.

Noting that "prevention is better than the cure", he said that was "why we are in Afghanistan – to prevent terrorists from using it as a launching pad for terrorist acts – and that is why we decided to take on the mission in Libya: it [was] a strategic consideration for NATO allies and their territory".

**Brooks Tigner**  
*JDW NATO and EU Affairs*  
 Correspondent, Brussels

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## UK's future ASaC waits on assessment

**An announcement is expected by the end of the year on the next steps to recapitalise the UK Royal Navy's (RN's) airborne surveillance and control (ASaC) capability under the Crowsnest programme.**

Lockheed Martin UK has been appointed as prime contractor for Crowsnest. A long-planned assessment phase will include a competition between Thales and a separate Lockheed Martin team to select a preferred mission system solution/provider.

The RN's Sea King ASaC.7 (SKASaC) helicopters are currently contributing to operations in Libya and Afghanistan.



The UK RN is looking to replace its ageing Sea King ASaC.7s. Crown Copyright: 1398734

Crowsnest is characterised as "a helicopter-based radar and control system that allows the identification of airborne threats beyond existing shipborne sensors and

the control of any embarked aircraft". It is understood that, having initially focused on dedicated ASaC-rolled Merlin airframes, the Ministry of Defence (MoD) is now looking at Crowsnest to deliver a role fit kit solution for the Merlin HM.2, 30 of which are being upgraded from HM.1 standard under the Merlin Capability Sustainment Programme.

*Jane's* understands that the start of the assessment phase is in sight. It is anticipated that 10 Crowsnest kits will be procured, with the aim of having up to eight aircraft available to serve in the ASaC role.

**Richard Scott**  
*Jane's Naval Consultant, London*

## HEADLINES

# Aerosud unveils AHRLAC COIN/light-attack aircraft

HELMOED-RÖMER HEITMAN *JDW Correspondent*  
Cape Town

**S**outh African aerospace structures company Aerosud is developing an 'advanced high-performance reconnaissance and light attack aircraft' (AHRLAC) in partnership with the Paramount Group.

The aim is to develop a capable but affordable and easily supported aircraft suited to the paramilitary missions facing armed forces, among them border security, narcotics interdiction, coastal security and counter-piracy operations, anti-terrorist operations and counter-insurgency missions. All require aircraft able to deploy to remote and austere bases, that have good dash speed and endurance and that can be fitted with comprehensive sensor suites and a flexible weapons load.

The AHRLAC offers rapid self-deployment over 1,100 n miles on internal fuel, cruising above the weather at 31,000 ft at 300 kt, and seven hours loiter during operations. External tanks can increase range and loiter time. A mission bay will accept interchangeable pods configured for forward-looking infrared/TV, synthetic-aperture

- Aerosud and Paramount have teamed to develop an advanced high-performance reconnaissance and light attack aircraft
- The first flight is expected around July 2012

radar, communications intelligence (COMINT) or electronic intelligence (ELINT) payloads. The aircraft's bay doors can be opened in flight, allowing it to be used for 800 kg of cargo that can be air dropped.

The AHRLAC's armament can include a 20 mm cannon or several machine guns in the nose and rocket pods or guided weapons on

six wing stations. Typical guided weapons could be Denel Dynamics' Mokopa or the lighter Impi missiles.

The AHRLAC is a high-wing aircraft with a steeply stepped tandem cockpit, powered by a 950 hp Pratt & Whitney PT6-66B turboprop driving a pusher propeller. Maximum take-off weight will be 3,800 kg with two crew, full fuel and an 800 kg payload.

The high wing and stepped cockpit provide an outstanding field of view that is further enhanced by the 'pusher' layout, with no propeller disk hampering the use of night-vision goggles. That layout also allows fitting a high-velocity 20 mm cannon on the centreline, where it does not affect the wing structure or the dynamics of the aircraft.

South Africa's Paramount Group has teamed with Aerosud to develop the **Advanced High-Performance Reconnaissance Light Aircraft**, which was unveiled in September 2011. Paramount Group: 1398726



The aircraft's fully integrated core avionics system includes a full 'glass cockpit', hands-on-throttle stick (HOTAS) controls and an electronic control system that eliminates circuit-breakers, reducing pilot workload and cockpit clutter. Designed from the outset to be modular, the system will be able to integrate sensor data display and advanced autopilot functions.

Operation from short, semi-prepared runways is facilitated by a high power-to-weight ratio, integrated engine air particle separators, a wide-track undercarriage with large-diameter, low-pressure tyres and a self-refuelling capability. The 'pusher' layout and high wing also reduce the risk of foreign object damage to the aircraft.

Aerosud has finalised design of the experimental development model (XDM) using extensive wind-tunnel tests and an instrumented scale remotely piloted scale model that carried out some 80 flight tests. A cockpit simulator is being developed for cockpit layout and handling evaluation and in the preparation for flight testing. The first flight is expected around July 2012.

Aerosud is headed by engineers who led the development of Denel's Rooivalk combat support helicopter and who developed a Mirage F1 and Mirage III upgrade centred on the Russian SMR95 engine. The company is today a major supplier of components to both Airbus and Boeing, as well as for a variety of combat aircraft and helicopters. ■

## China-US military ties strained but not broken by proposed Taiwan arms sale

**Chinese officials have signalled to their US counterparts that some military-to-military ties will be hurt by the proposed sale of US equipment to Taiwan, but the overall effects are not expected to be as serious as in 2010.**

The US State Department said that Chinese Foreign Minister Yang Jiechi had summoned the US ambassador in Beijing to protest, as well as registering China's opposition to the sale with US Secretary of State Hillary Clinton during meetings at the UN in New York.

A senior US State Department official told reporters on 26 September that Chinese diplomats had indicated some "activities, as part of the military-to-military programme, will be postponed, rescheduled or cancelled" in response to the sale.

In 2010 China cut all military ties with the US following a USD6 billion arms sale to Taiwan that included air defence missiles, helicopters and communications equipment, but not the 66 F-16C/D aircraft the island was seeking.

The proposed 2011 sale includes a USD5.3 billion upgrade to Taiwan's F-16A/B fleet and a USD500 million training package, but once again not the F-16C/Ds. The upgrade to Taiwan's F-16A/Bs would include active electronically scanned array (AESA) radar systems, as well as new weapon systems, such as Joint Direct Attack Munitions (JDAMs) and AIM-9X Sidewinder air-to-air missiles.

Admiral Robert Willard, head of US Pacific Command (PACOM), said that,

while he expected negative consequences at some level, he believed the military-to-military relationship would not be as badly damaged by this sale as it had by past ones. "Regardless of the effects of this particular round of Taiwan arms sales and the disagreement between our two governments on that issue, China will be very likely to retain the highest-level visitation that will enable us to continue strategic-level discussions," Adm Willard told reporters on 27 September.

The US is obligated to provide for the defence of the island under the Taiwan Relations Act, but is also keen to stabilise relations with China, which views Taiwan as a breakaway province.

**Daniel Wasserby** *JDW Senior Americas Reporter, Washington, DC*



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## HEADLINES

# EDA establishes counter-IED lab in Afghanistan

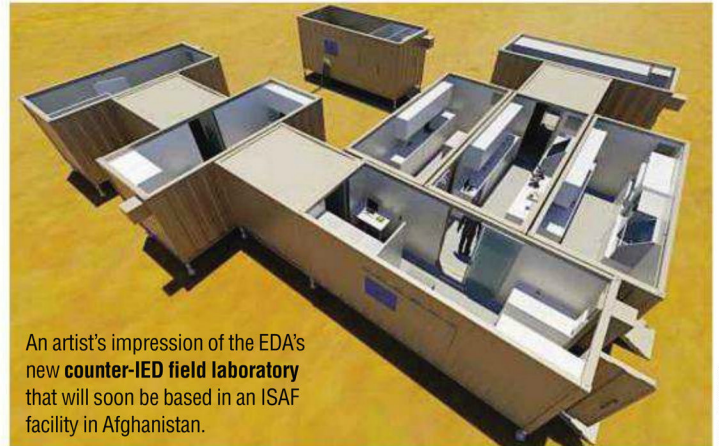
**BROOKS TIGNER** *JDW Correspondent*  
Brussels

**A** new multinational counter-IED field laboratory deployed to Afghanistan should reach full operational capability by the end of October, according to the European Defence Agency (EDA), which sponsored the equipment's purchase and assembly.

"We expect the lab to reach full operational capability in about three weeks as it connects to the secret networks of the nations for sharing data," said EDA project officer

- The EDA has sent a multinational counter-IED lab to Afghanistan to analyse potential IED threats
- The lab should reach full operational capability by the end of October

Jim Blackburn, referring to the 48 nations of the NATO-led International Security Assistance Force (ISAF) in Afghanistan. Blackburn and other EDA officials spoke to *Jane's* on 26 September.



An artist's impression of the EDA's new counter-IED field laboratory that will soon be based in an ISAF facility in Afghanistan.

EDA: 1440876

The EUR1 million (USD1.35 million) lab, which is located inside an ISAF camp in Afghanistan, was financed from the EDA's modest research budget and supplemented by equipment and financial donations from a dozen of its 26 member countries. All EU countries except Denmark belong to the agency.

For example, the cost of the lab's deployment to Afghanistan on 28 July and its eventual return to Europe – estimated at around EUR500,000 – is covered by Luxembourg, while Austria contributed the equipment for analysing digital media, such as CDs, DVDs or SIM cards from mobile phones. Such device analysis is useful for developing IED countermeasures or for deciphering forensic evidence that leads to IED supply chains.

Modular in design, the lab's construction was based on standard-size shipping containers for ease of deployment and was assembled by Spanish company Indra. Its analytical capabilities cover biometrics (fingerprinting and scanning), electronic circuitry (activators and fuses), digital media and chemicals (explosive and non-explosive components). It also has some DNA forensic capability, although only for sampling rather than analysis.

The lab does not have a classic CBRN forensic capability, nor does it admit such material. Although there have been unconfirmed rumours of past attempts at using CBRN-laden IEDs in Afghanistan, "that is not the realistic threat for ISAF forces", said Hubert Muckel, the EDA's capability manager. "We only had EUR1 million to spend, so we went for the greatest risk: conventional IEDs." ISAF and Afghan security forces are confronted with about 7,000 IED incidents each

year, representing the deadliest threat to their safety.

The main issue facing the lab's shift to full operational capability is its connectivity to ISAF nations' secret systems in the field. "This is something we can't orchestrate from Brussels, but it is ongoing and we hope it will be done in about three weeks," said Blackburn. France, the lead country for the nine nations that signed up to a technical opt-in agreement, is co-ordinating that task. The lab will also plug into the Afghan Mission Network, ISAF's services-based IT architecture, by feeding data to its classified reference library of IED characteristics.

The lab's 14-strong team of specialists use one or more of eight self-contained secure networks inside the laboratory, of which one is networked across the entire lab in order to share or transfer data from one analytical post to another. "All the connectivity exists, so we're just waiting to be plugged into the outside networks," said Blackburn.

Lab crews will rotate in six-month deployments, with training to take place in France, Ireland and either the Netherlands or Austria. The lab will carry out three six-month missions at the same site until the end of 2013, after which the EDA will decide whether to renew the lab's mission or recall it to Europe.

"The main point of this project is to create a template: the value of the information and how to do C-IED forensics in the field, which is a scarce capability right now in Europe," said EDA Capability Director Jon Mullin. "This is a concept demonstrator and the wider aspect is what to do with the information it generates and how national [military] processes and structures will be changed." ■

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## THE AMERICAS

# USAF receives first special mission C-130Js

GARETH JENNINGS *Jane's Aviation Desk Editor*  
London

**T**he US Air Force (USAF) has received its first two recapitalised special mission Hercules transport aircraft, prime contractor Lockheed Martin announced in the week beginning 26 September.

The first HC-130J Combat King II personnel recovery aircraft was handed over to the Air Combat Command (ACC) during a ceremony at Davis-Monthan Air Force Base (AFB), Arizona, on 24 September, while the first MC-130J Combat Shadow II special operations Hercules was delivered to the Air Force Special Operations Command (AFSOC) at Cannon Air Force Base, New Mexico, on 29 September.

Both aircraft are the first examples of a USAF effort to recapitalise its ageing special mission MC-130P Combat Shadow and HC-130N/P Combat King platforms, which have been in service since 1965 and 1965/6 respectively.

Being among the oldest aircraft in the USAF's inventory, the current HC/MC-130s have among the lowest availability rates of any type now in service. According to Lockheed Martin's HC/MC-130 Fleet

- The US Air Force has received the first two special mission C-130J Hercules transport aircraft as part of its efforts to recapitalise its HC/MC-130 fleet
- The recapitalisation programme aims to increase availability and reduce operating costs

Recapitalization Program manager, Jack O'Banion, this stands at between 50 and 60 per cent.

As well as increasing availability and reducing operating costs, the recapitalisation programme will include a number of modifications and enhancements that will dramatically improve the baseline capability of the two platforms.

Both the MC- and HC-130J-variant aircraft share a common configuration at their core that includes the fitting of the Universal Aerial Refueling Receptacle Slipway Installation above the cockpit; a 250 kt rear ramp, allowing paratroop and air drops at higher speeds; the Enhanced Service-Life Wing to reduce fatigue at low levels; improved satellite communications and datalinks; night-vision systems; a digital 'glass' cockpit featuring



The first HC-130J, seen at Lockheed Martin's Marietta production facility in Georgia prior to delivery to the US Air Force.

Lockheed Martin: 1398059

The US Air Force took delivery of the first of 20 new MC-130J Combat Shadow II aircraft during a ceremony at Cannon Air Force Base, New Mexico, on 21 September.

Lockheed Martin: 1398059



two head-up displays; modernised combat systems operator (CSO) workstations; an open architecture for future systems integration; and the provision for a chin-mounted electro-optical/infrared (EO/IR) sensor turret. In addition, the C-130J's Rolls-Royce AE 2100D3 engine provides 25 per cent more power than the existing powerplant.

In all, the air force has a requirement for 115 new platforms, with 31 currently under contract (20 MC-130Js and 11 HC-130Js). These 31 comprise three baseline standard, 10 Increment 1 standard and 18 Increment 2 standard aircraft.

Increment 1 will see the addition of a fourth crew station on the flight deck, an improved aircraft intercom system, additional onboard power generation, enhanced defensive

countermeasures and other system and subsystem additions.

For Increment 2, the aircraft will again be given an enhanced onboard power generation capability for additional mission systems, rear-crew restraint systems and provision for the High Speed Low-Level Aerial Delivery System (HSLADS) and Large Aircraft Infrared Countermeasures (LAIRCM).

With the first two Increment 1 aircraft now delivered, Increment 2 deliveries are set to begin in early 2012.

Lockheed Martin has begun looking beyond Increment 2, but has not yet released any details as to what might be included in any additional upgrade.

Initial operating capability for both types is set for 2012. ■

## F-22 hypoxia investigation continues as USAF fleet returns to the skies

The US Department of Defence (DoD) has contracted Lockheed Martin to conduct a hypoxia root-cause analysis on the F-22 Raptor's onboard oxygen generation systems (OBOGS), it announced on 26 September.

News of the contract, which forms part of a wider support agree-

ment valued at USD24 million, came on the same day the company conducted its first flight since a four-month grounding order was rescinded on 19 September.

The US Air Force (USAF) suspended flight operations of its Raptor fleet on 3 May after pilots reportedly suffered hypoxia-like

symptoms. Although an investigation into the OBOGS system by the USAF Scientific Advisory Board (SAB) has failed as yet to identify the root cause of the problem, the air force has deemed it safe to return the aircraft to flight status with the proviso that pilots will receive additional emergency training and

protective equipment; the exact nature of this equipment has not been disclosed.

The SAB is expected to finalise its study and release a report in November.

The events of the previous four months will not affect the F-22's delivery schedule, with the final aircraft set to roll off the production line in December of this year, according to Lockheed Martin.

Gareth Jennings

*Jane's Aviation Desk Editor,*  
London

# F-35B gears up for impending sea trials

GARETH JENNINGS *Jane's Aviation Desk Editor*  
London

**The US Naval Air Systems Command (NAVAIR) has begun its final flight qualification preparations ahead of the impending initial ship trials of the short take-off and vertical landing (STOVL)-variant Lockheed Martin F-35B Lightning II Joint Strike Fighter (JSF).**

The land-based trials, which began on 14 September but were not announced until 21 September, saw the four test pilots involved in the sea trials undertake expeditionary airfield (EAF) landing practice ahead of the field carrier landing practice (FCLP) set to follow shortly after.

These two disciplines are needed to ensure pilots are adequately prepared for the inherent danger in operating aircraft in a maritime environment and are part of the

normal pilot certification process for landing aircraft on an amphibious deck, NAVAIR said.

As part of the build-up to the sea trials, the test pilots have been undergoing flight and simulator training to hone their skills. According to BAE Systems' lead STOVL test pilot (and former UK Fleet Air Arm Harrier pilot), Pete 'Wizzer' Wilson, the amount of flight and simulator time is largely the same. "Right now we're doing [slightly] more simulator time than flight time, [but the] ratio is close to 1:1," he told *Jane's*.

"[The results of the simulator work] have been remarkable," he added. "The aircraft has performed beautifully alongside the ship [and] there have been no new findings at all around the aircraft and its performance. We have injected failures

that we think might happen, but the aircraft looks like it's going to be very solid."

Lockheed Martin chief test pilot (and former US Navy Hornet pilot) David 'Doc' Nelson agreed with Wilson that the time spent in the simulator has been time well spent, saying: "The simulator is a great tool, [and] the beautiful thing is that you can be at 30,000 ft at 0.9 Mach in about three seconds. It's a very efficient tool that helps us a lot."

Sea trials of the F-35B are due to commence aboard the amphibious assault ship USS *Wasp* (LHD 1) sometime in October. During this test campaign, which will take place in the Atlantic Ocean off the US East Coast, the aircraft's STOVL capability at sea will be tested along with its deck handling. It will also allow programme officials to gather deck environmental data.

In anticipation of this, an F-35B (BF-4) was subjected to a day



The STOVL-variant **F-35B** is set to embark on USS *Wasp* for a series of sea trials in October. Lockheed Martin: 1398483

of intensive electromagnetic environment trials at the Naval Electromagnetic Radiation Facility at Naval Air Station (NAS) Patuxent River, Maryland, in late June of this year. ■

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# THE AMERICAS

## Block 10 Global Hawks make way for Block 30s

MARINA MALENIC *Jane's Aviation Reporter*  
Washington, DC

**T**he US Air Force (USAF) is transferring its seven Block 10 RQ-4 Global Hawk unmanned aerial vehicles (UAVs) to other US government agencies and museums as it begins using the enhanced Block 30 models for most missions.

Thus far, three of the high-altitude long-endurance (HALE) UAVs have been transferred to the US Navy to support the service's Broad Area Maritime Surveil-

- The US Air Force has started the phasing out of its Block 10 RQ-4 Global Hawk unmanned aerial vehicles to make way for the enhanced Block 30 model
- Three of the Block 10s have already been transferred to the US Navy, with another two handed over to museums

lance Demonstration (BAMS-D) programme and two have been transferred to museums for use as

static displays, according to prime contractor Northrop Grumman.

The last Block 10 that flew as a USAF asset did so in May.

"While the aircraft have concluded their missions and support for the air force, they will now support missions for the US Navy," said George Guerra, vice-president for the programme at Northrop Grumman.

All seven Block 10 Global Hawks are fully operational, with the first having entered service in 2003. Since then, the seven aircraft have flown a total of 2,141 missions for 35,528 hours, 89 per cent of which were in support of combat operations.

In addition to combat missions, the aircraft have supported response efforts against natural disasters and have also provided support to the US counter-narcotics mission.

Two Block 10 aircraft were acquired by the navy's BAMS-D programme in the original procurement. More recently, the navy awarded Northrop Grumman a USD35.5 million annual contract

in August for continued operations and maintenance for the BAMS-D aircraft.

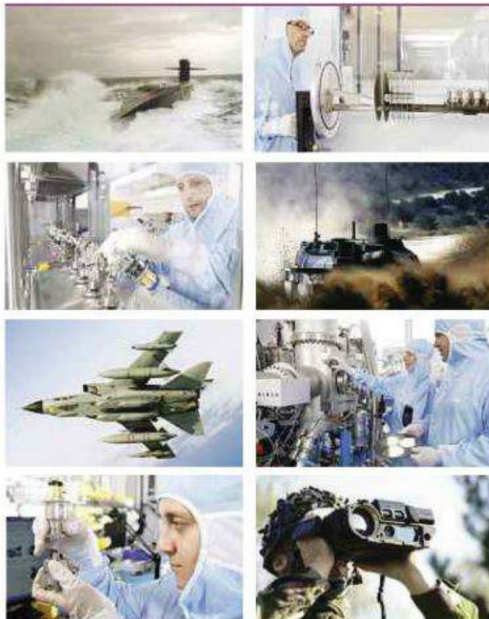
The USAF has deployed Block 30 Global Hawks to support the missions once flown by the Block 10 aircraft. The Block 30 Global Hawks currently deployed are equipped with the Raytheon Enhanced Integrated Sensor Suite (EISS), which features an electro-optical/infrared sensor turret and a synthetic aperture radar.

They have flown over the Fukushima nuclear facility in Japan to gather thermal images and over Libya on ground surveillance missions.

Within the next year, the Block 30 aircraft are to be reconfigured to add Northrop Grumman's multi-intelligence sensor package – the Airborne Signals Intelligence Payload (ASIP).

In a recent programme restructure, the Pentagon capped the USAF's Block 30 Global Hawk buy at 31 aircraft instead of completing the planned purchase of 44 aircraft. ■

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# Bath Iron Works comes out top in US destroyer contest

SAM LAGRONE *JDW Staff Reporter*  
Washington, DC

The US Navy's revised procurement strategy for Arleigh Burke-class destroyers has resulted in contract awards for two ships to General Dynamics Bath Iron Works (BIW) and one for Huntington Ingalls Industries (HII).

BIW secured a USD679.6 million fixed-price-incentive contract for the construction of DDG 115 while HII received a USD697.6 million award for DDG 114, the Department of Defense announced on 26 September.

Having submitted the lowest tender, Maine-based BIW won an additional contract option for DDG 116 valued at USD665 million.

The Flight IIA ships are being procured under a 'Profit Related to Offers' (PRO) strategy, intended by the navy to drive down costs, whereby each yard is required to submit a base price for the ship and a projected profit margin.

As the victor, BIW was awarded its base price for DDG 115 plus the proposed profit margin and the option for DDG 116; rival HII will receive the base price for DDG 114 and a lower profit percentage.

- Bath Iron Works (BIW) has secured contracts for two Arleigh Burke-class destroyers from the US Navy as part of the service's revised procurement strategy
- Huntington Ingalls Industry, BIW's rival bidder in the programme, received a contract for one ship

Meanwhile, the navy disclosed that the contract awarded to HII more than three months ago for DDG 113 – the 63rd Arleigh Burke-class destroyer, but the first ordered since 2002 – was worth USD783.5 million. Although it was signed on 17 June, the contract value was not made public at the time because it was considered to be proprietary business information during the competition for the next three ships.

All the contract awards exclude the cost of Aegis weapon systems and other government-furnished equipment for the Flight IIA destroyers. The final procurement bill for each ship will probably be close to USD1.1 billion. ■

## US Navy conducts first launch of E-2D Hawkeye using EMALS

The US Navy conducted the first launch of an E-2D Advanced Hawkeye airborne early warning and control aircraft using the Electromagnetic Aircraft Launch System (EMALS) on 27 September.

The test, conducted at the Naval Air Warfare Center Aircraft Division's site at Lakehurst, New Jersey, provided further validation of a system that will form a key component of the Gerald R Ford-class aircraft carriers.

The General Atomics-designed EMALS has now completed almost 100 aircraft launches to date, according to Captain James Donnelly of Naval Air Systems Command (NAVAIR). The system launched an F/A-18E Super Hornet strike aircraft in December 2010 and subsequent tests have featured the T-45 Goshawk training aircraft and C-2 Greyhound carrier onboard delivery aircraft.

Lieutenant Commander Brain Tollefson, a pilot with Air Test and Evaluation Squadron 20, told *Jane's* that he noticed no difference between 'shots' from EMALS and the legacy C-13 steam catapults in the Nimitz-class carriers.

Based on linear motor technology, EMALS is designed to provide greater launch energy for heavier

aircraft, more accurate end-speed control and cost savings in terms of launch system maintenance and reduced wear and tear on airframes.

EMALS is also designed to launch lighter aircraft, including fixed-wing unmanned aerial vehicles (UAVs). However Northrop Grumman's X-47B Unmanned Combat Air System Demonstration (UCAS-D) platform, a prototype aircraft designed to prove a fixed-wing UAV can operate from a carrier, is currently not on the testing schedule, Capt Donnelly told *Jane's*.

Developmental problems with EMALS, which are understood to involve software, have hampered the programme and pushed the system's initial operational capability (IOC) from 2013 to 2015.

According to a Department of Defense report in April 2010, cost overruns on the EMALS programme led to a USD1.29 billion increase in the procurement price for the first of the new carriers, Gerald R Ford (CVN 78).

In July last year General Atomics signed a USD676 million fixed-price contract for EMALS and the concurrent Advanced Arresting Gear (AAG) to help the company absorb any additional cost overruns.

Sam LaGrone *JDW Staff Reporter, Washington, DC*

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## THE AMERICAS

# Brazilian military issues 2012 budget request

INIGO GUEVARA *JDW Correspondent*  
Mexico City

**T**he Brazilian military has requested BRL63.7 billion (USD34.9 billion) for a 2012 defence budget that includes more than BRL8 billion (USD4.38 billion) in procurement funds, marking an 18 per cent increase in procurement on last year's budget.

The funding request must be approved by Congress, which has in the past either changed or augmented the budget.

In the 2012 budget Brazil's Ministry of Defence (MoD) would administer BRL900 million for its intra-service H-XBR medium-lift helicopter programme,

which comprises local production of 50 EC 725s, as well as a new satellite communications system (SISCOMIS) valued at BRL7 million.

The Brazilian Air Force's (FAB's) request would fund the BRL544 million development of a multirole KC-390 tanker/transport, provide BRL309 million for its air surveillance and defence system (SISCEAB) and BRL716 million would pay for upgrade projects for its legacy aircraft fleets.

The FAB's budget request does not include any funding for the long-delayed F-X2 multirole fighter programme, which

is an indication that a decision on the platform will likely be further postponed.

The Brazilian Navy's budget focuses mainly on its submarine infrastructure programme and includes BRL1.2 billion for a new submarine base. The navy is also seeking BRL930 million for continued work on its nuclear and conventional submarine fleets.

Other budget items include BRL73 million for the next phase of the NAPA-500 littoral patrol vessel and BRL65 million to begin the NAPA-1800 programme for an existing offshore patrol vessel design to be selected in 2012. There is no mention of funding for the 11-ship Surface Warfare Programme. ■

## Ecuador seeks refurbished Super Seasprites

Ecuador has asked the US to refurbish two Kaman SH-2G Super Seasprite naval helicopters as part of a USD60 million Foreign Military Sale (FMS).

The Defense Security Cooperation Agency (DSCA) said that it notified the US Congress on 27 September of the potential sale, which would equip each of the helicopters with a HELRAS (Helicopter Long-Range Active Sonar) dipping sonar, AN/APS-143C(V)3 OceanEye surveillance and navigation radar and AAQ-22 forward-looking infrared radar, among other things.

The SH-2G helicopters are intended for anti-submarine warfare, anti-surface vessel warfare and search and rescue missions, as well as logistics support for the Ecuadorian Navy.

**Daniel Wasserbly** *JDW Senior Americas Reporter, Washington, DC*

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## EUROPE

# Russia to revamp early warning radars

PETER KAZIMIROFF *JDW Correspondent*  
Moscow

**R**ussia is set to commission two new early warning radars (EWRs) by the end of 2011 as it seeks to modernise its EWR network.

According to an unnamed, high-ranking Russian Space Forces (RSF) official quoted in the *Izvestia* newspaper, the RSF will commission two over-the-horizon EWRs in December. Known as 'Voronezh-DM' systems, the radars will be based in Armavir, in south Russia, and in the vicinity of Pionerskiy village in Kaliningrad.

Moscow is aiming to resurrect the system that almost collapsed following the demise of the Soviet Union, when it lost access to five strategic EWRs in four former Soviet republics. The RSF claim that the radars will cover a large area: from Morocco to the Svalbard Islands and from the southern part of the Indian Ocean to the Far Eastern Pacific and

- Russia is pushing to expand its EWR suite, with two systems set to be commissioned before 2012
- The country's EWR capability almost collapsed after the end of the Soviet Union

the western coast of the US.

"By fielding these radars, Russia will reconstitute the former integrity of [its] early warning control over the country," the official said.

The EWRs will be capable of detecting and monitoring potential incoming ballistic missiles at an initial maximum range of 4,500 km and then up to 6,000 km following further upgrades. The third radar of the same type is to be established near Irkutsk in eastern Siberia in 2012.

Russian military experts say the Pionerskiy EWR could be used to offset the capabilities of the NATO ballistic missile defence (BMD)



The Voronezh early warning radar at Lehtusy, pictured in 2006.

PA Photos: 1440878

system given Moscow's continuing suspicions about the alliance's motives for developing alliance-wide BMD.

The first of the new EWRs, known as 'Voronezh-M', was commissioned at Lehtusy near St Petersburg in 2009. This radar will be fully operational in December 2011.

The overall cost of each of these sensors has been valued at RUR1.5 billion (USD47 million). Each system will be operated by 15 men. Using new construction modules, the radar can be assembled more quickly than its Soviet-era counterparts. Russia's state armaments programme for 2020 provides for the replacement of all remaining ex-Soviet EWRs with Voronezh-DMs. ■

## Caucasus base plans approved

The upper house of the Russian parliament has backed government plans to establish military bases in the breakaway Georgian republics of South Ossetia and Abkhazia.

The move follows a similar vote by the lower house of parliament, the State Duma, and rubber-stamps Russia's military build-up in the disputed territories: the centre of a brief war with Georgia in August 2008. The votes have been sharply criticised by the Georgian government, which views the Russian presence as unlawful.

The agreements, which were sealed in 2010, will allow Moscow to maintain bases in the territories for 49 years, with potential extensions of 15 years, according to Viktor Ozerov, chairman of the federation council defence committee, who was quoted in state news service RIA Novosti.

Russia has maintained a deployment of at least 1,700 troops in Gudauta, Abkhazia, since September 2009.

The plans have been vehemently opposed by Georgia and attracted strong criticism from Western governments, who view the move as contrary to international law and against the terms of the internationally brokered ceasefire agreement between Russia and Georgia.

Gerrard Cowan *JDW Europe Editor,*  
London

## S-400 sees first test firing

Russia carried out the first test launches of the S-400 Triumf (SA-21 'Growler') during military exercises in September.

The S-400 was first tested during the 'Combat Commonwealth 2011' exercise, held with a number of Commonwealth of Independent States (CIS) members in the Ashuluk testing range of Russia's Astrakhan region and in the Sari-Shagan firing range in Kazakhstan. Further tests took place during 'Union Shield 2011': a joint exercise with Belarus that took place on 16-22 September.

Several CIS members have expressed a desire to buy the system. Major General Sergei Lemeshevsky, commander of the air force and air defence of Belarus, confirmed ahead of 'Union Shield 2011' that Minsk would be interested in acquiring a number of S-400 systems from Moscow. Kazakhstan, which has already acquired the S-200 and S-300 systems, has expressed

an interest in acquiring S-400s as part of a deal to create a joint air defence system with Russia. This project already includes Armenia and Belarus.

The Russian Ministry of Defence (MoD) is planning to establish an Air Defence and Space Command by December 2011 that would constitute the backbone of its new multilayered ballistic missile defence (BMD) structure. It will mainly consist of the fifth-generation S-500 system, which is under development. The outdated S-300 units around Moscow will be replaced by the S-400 by 2015; this process has already begun.

Meanwhile, the *Izvestia* newspaper reported on 21 September that Russia is pushing ahead with plans to arm a number of its cruisers with a naval variant of the S-400. According to a spokesman for the Russian Baltic Sea Fleet, two S-400 units are to arrive at the end of 2011, although it is unclear when they will enter service.

Peter Kazimiroff *JDW Correspondent, Moscow*

### ANALYSIS

According to reports in the Russian media, the state armaments programme envisions the acquisition of 56 S-400s and 10 S-500s by 2020. If this goal is achieved, Russia could possess the second-largest holding of missile defence systems in the world, after the US.

Moscow could gradually co-operate with NATO on developing a joint European BMD system, provided Russia is convinced that the alliance's new missile defence scheme is not directed against its own strategic nuclear arsenal. There is a hope in Russia that a major breakthrough could occur before NATO's next summit, which is scheduled to take place in Chicago on 20-21 May 2012.

Certain Russian military analysts see a link between the apparent desire of Russian officials to rapidly modernise the country's BMD capabilities with the foreign ministry's negative reaction to the recent agreements the US signed with Poland, Romania and Turkey to progress its own European BMD plans.

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## EUROPE

# Dutch frigates set to receive BMD capability

MENNO STEKETEE *JDW Correspondent*  
Amsterdam

**T**he Smart-L air search radars in the Royal Netherlands Navy's De Zeven Provinciën-class frigates are to be upgraded with an extended long-range (ELR) mode, the Dutch Ministry of Defence (MoD) announced on 26 September.

Costing a projected EUR250 million (USD340 million), the technology insertion will allow the four frigates to detect and track ballistic missiles up to an estimated range of 2,000 km.

The capability enhancement could form part of NATO's Active Layered Theatre Ballistic Missile Defence (ALTBMD) programme and could also augment the US-led European Phased Adaptive Approach (EPAA) programme, which will field land-based Standard Missile 3 (SM-3) systems in Poland and Romania.

According to Thales Nederland, which developed and manufactures the Smart-L 3D D-band radar, the

- The Royal Netherlands Navy's De Zeven Provinciën-class frigates are to receive upgraded radars
- The radars will enable the ships to detect and track ballistic missiles up to an estimated range of 2,000 km

technology involved in the project is already proven in the De Zeven Provinciën-class. In December 2006 the Smart-L sensor in second-of-class HrMs *Tromp* was equipped with an ELR upgrade for trials at the US Navy's Pacific Missile Range Facility in Hawaii. *Tromp* successfully tracked a short-range ballistic missile target and correctly extrapolated the predicted point of impact and the launch site.

While Smart-L/ELR can be used to warn of enemy missile attacks, the collected track data can also serve to guide SM-3 interceptors from other ships and to enhance the accuracy of Patriot PAC-3 air

defence missile batteries, which are operated by the Royal Netherlands Air Force.

Although the De Zeven Provinciën-class frigates are fitted with the same Mk 41 vertical launch system (VLS) that is used by the US Navy to deploy its SM-3 missiles at sea, the Dutch MoD – in its letter to parliament confirming the radar upgrade – denied that it was considering acquiring the missile.

A US defence official who visited the Netherlands at the end of September said that NATO had floated an unofficial plan to establish a small common pool of SM-3s that could equip 10 European naval vessels: the four Dutch ships, Germany's three Sachsen-class (Type 124) frigates and Denmark's three new Iver Huitfeldt-class frigates.

The 10 frigates are all equipped with the Smart-L radar, the APAR (Advanced Phased Array Radar) air/surface search and fire control radar and the Mk 41 VLS.

In the past 18 months Raytheon has privately developed a dual X- and S-band datalink that would enable the SM-3 Block 1B interceptor to be used in conjunction with the Smart-L and APAR suites.

"This is an initiative we have taken to make a European upper-tier [BMD] capability more affordable and achievable in a shortened timeline," Wes Kramer, Raytheon Missile Systems Vice-President, Air and Missile Defence Systems, said at the Defence and Security Equipment International (DSEi) exhibition in London in mid-September. ■

## NATO ACCS passes factory system test

**The NATO Air Command and Control System (ACCS) has successfully completed its factory system test (FST) and received approval from the NATO Air Command and Control System Management Agency (NACMA), it was announced on 26 September. Final validation will now take place at a number of NATO sites.**

The ACCS was developed by Air Command Systems International (ACSI): a ThalesRaytheonSystems (TRS) company.

It will replace NATO's existing air command and control (C2) systems with a single, integrated system for planning, tasking, monitoring and mission execution. It will interconnect about 300 sensor sites with more than 40 different radar types and will support about 160 standard interfaces, links and data types. The system represents a significant step forward in NATO's air C2 interoperability.

"The FST was a comprehensive set of technical and operational tests, giving NATO the confidence to move forward to the next validation phase and for ACCS to be the foundation for Ballistic Missile Defence C2 capabilities," Gerhard van der Giet, general manager of NACMA, was quoted as saying on 26 September.

**Giles Ebbutt** *Jane's C4I Systems Editor, Plymouth*

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## US to aid Ukraine in HEU disposal

**US Secretary of State Hillary Clinton and Ukrainian Foreign Minister Kostyantyn Gryshchenko signed an agreement on 26 September to co-operate on nuclear non-proliferation and to secure all vulnerable nuclear weapons-usable materials in Ukrainian territory. The move formalises a decision first announced at the 2010 Global Nuclear Security Summit in Washington, DC.**

Ukrainian President Viktor Yanukovych, reiterating the commitment he made to US President Barack Obama last year, told media at the UN Nuclear Summit in New York that Kiev would firmly commit to disposing of all stockpiles of weapons-usable highly enriched uranium (HEU) by March 2012, when the next Global Nuclear Security Summit will convene.

Under a memorandum of understanding signed by Clinton and Gryshchenko, the US will provide funding and technical assistance to aid Ukraine in removing the remaining HEU on its territory, as well as for rebuilding Ukraine's civil nuclear research facilities. The HEU still in Ukraine is research reactor fuel; the US will continue to help with conversion of those facilities to non-weapons-usable, low-enriched uranium (LEU) fuel.

Clinton said: "Ukraine has already removed a substantial portion of its HEU and the US has made progress on the neutron source facility project ... we expect to break ground in Ukraine soon." Ukrainian and US technicians removed 110 lb (50 kg) of research reactor fuel containing HEU in 2010.

With the collapse of the Soviet Union, Ukraine inherited the third-largest nuclear weapons arsenal in the world after Russia and the US. According to the Nuclear Threat Initiative (NTI), a US-based international nuclear non-proliferation foundation, the stockpile originally included about 1,900 strategic warheads and about 2,275 tactical nuclear weapons.

Ukraine was the first of the former Soviet states to denounce nuclear weapons. By 1996 the country had transferred all of its nuclear weapons and missile delivery systems to Russia for dismantlement and destruction. These programmes were funded by the US National Nuclear Security Administration's Global Threat Reduction Initiative (GTRI) and payments from Russia in the form of fuel for Ukraine's commercial power reactors.

**Eric Lindeman** *Clean Energy Direct Editor, Washington, DC*

## EUROPE



The Armenian **Krunck-25 UAV** was on display at Armenia's 20th Independence Day parade on 21 September. Armenian Ministry of Defence: 1440874

## Armenia shows new UAV

GRZEGORZ HOLDANOWICZ *JDW Correspondent*  
Warsaw

**T**he Armenian armed forces publicly displayed the locally developed **Krunck-25 tactical unmanned aerial vehicle (UAV)** for the first time at the country's 20th Independence Day Parade in Yerevan on 21 September.

According to information provided to *Jane's*

by the Armenian Ministry of Defence (MoD), the Krunck-25 was developed by the MoD's Air Force Institute. It is made of composites, has a maximum take-off weight of 60 kg and "is not radio visible".

The UAV is equipped with a programmed autopilot system and can remain in the air for five hours. It has a maximum ceiling of 4,500 m, an operational ceiling of 3,500 m and a cruise speed of 150 km/h. The system is smaller, although similar in configuration to the Aeronautics Aerostar in service with neighbouring Azerbaijan, but has an engine installed in the front part of the fuselage.

There is a small, stabilised electro-optical turret under the fuselage with a video and photographic camera. This can be controlled from a ground station by a crew of three operators.

The first reports of this new UAV surfaced on 18 June 2011, when Colonel Armen Mkrtychian, the deputy commander of the Armenian Air Force, said that his country possessed "quite serious unmanned aerial vehicles, even those capable of carrying out missions deep inside enemy territory". Other local sources claim that the Krunck-25 is just one example from the Armenian UAV programme.

The parade also saw the first public display of the country's S-300PS surface-to-air missile system. The system had earlier conducted live firings during the 'Combat Commonwealth 2011' exercise, held in Russia's Ashuluk training area and Kazakhstan's Sari-Shagan firing range and involving Armenia, Belarus, Kazakhstan, Russia and Tajikistan. Armenia only confirmed in December 2010 that it had received the older-generation S-300s from Russia.

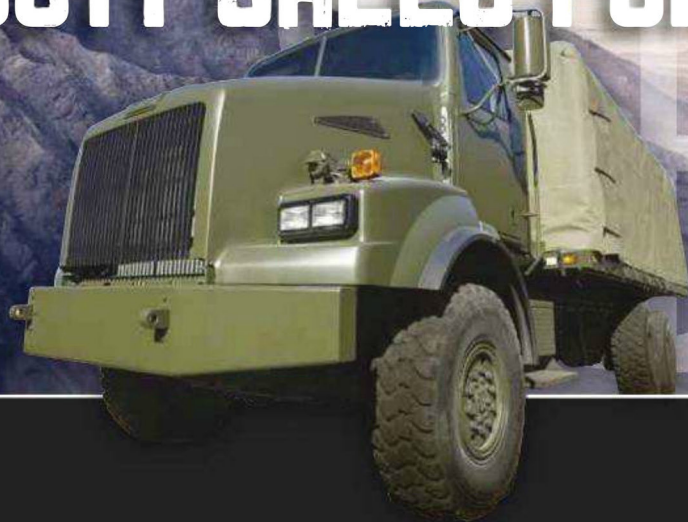
Armenia also displayed its Russian-supplied GAZ-2975 Tigr armoured patrol vehicles, of which it is believed to have been the first export customer.

Other technology on display for the first time included mobile N-2 multiple rocket launchers with rounds armed with 4.4 kg TB-1 thermobaric warheads, developed in Armenia by GARNI-LEP. The launchers are compatible with rocket-propelled grenade (RPG)-7-type projectiles and can fire 12 projectiles in less than 10 seconds to a maximum range of 1,300 km.

Armenia also showed its 9K72 'Scud-B' tactical surface-to-surface missiles with a locally developed improved guidance system as well as 9K79M-1 Tochka-U tactical surface-to-surface missiles and other equipment. Both were presented in public for the first time, although 'Scuds' have been in the Armenian inventory since the late 1990s.

Soldiers from the 102nd Military Base of the Russian Federation Armed Forces, which is based in Armenia, took part in the parade, as well as troops from the enclave of Nagorno-Karabakh. ■

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# France eyes asset sale as way to maintain spending levels

JAC LEWIS *JDW Correspondent*  
Paris

France will maintain existing levels of defence spending into 2012, although current plans hinge on the successful EUR1.1 billion (USD1.5 billion) sale of unused military radio frequencies to private operators next year.

The French Ministry of Defence said on 28 September that its global allocation for 2012 would stand at EUR31.6 billion. This marks a nominal increase over the 2011 level of EUR31.1 billion, although the rise merely keeps pace with inflation. However, the move indicates that France is willing to effectively ring-fence military spending from the wider austerity drive.

The lion's share of next year's budget will go towards the acquisition

of new equipment, with EUR16.5 billion set aside for hardware.

The French Navy's first multipurpose FREMM (Frégate Européen Multi-Mission) frigate, *Aquitaine*,

will be commissioned in July 2012, while a third Mistral-class amphibious assault ship, *Dixmude*, is to join the fleet later in the year. Eleven of Dassault Aviation's Rafale fighters are also to be delivered next year.

The increase comes as Paris pushes to reduce the French budget deficit next year to 4.5 per cent of gross domestic product as opposed to 5.7 per cent in 2011.

France's hopes of offsetting core military spending reductions through the sale of surplus telecommunications bandwidth were first announced in 2011. The wider asset sales included the divestment of prime MoD-owned real-estate in Paris and was in total intended to raise around EUR2.3 billion: a figure that some view as optimistic.

## ANALYSIS

**The 2012 defence allocation is – in nominal terms at least – in step with France's six-year military spending programme covering 2009-14, which calls for gradual annual rises and a total outlay of EUR102 billion over the period.**

If maintained, the military allocation for 2012 will account for about 1.9 per

cent of GDP (compared with near-peer the UK, which is on course to allocate 2.2 per cent to defence spending next year).

France and the UK have historically achieved broad parity as Europe's largest defence markets. However, austerity in the UK and French efforts to ring-fence military funding as far as possible could see Paris overtaking London around 2014.


The outlook for France hinges in part


on an exhaustive mid-term review of France's military allocation plan, which will be conducted in 2012, and the continued rise of the French Socialist Party, which is currently ahead in polls for the presidential and legislative ballots in May. Either the review or a victory for France's Left, which has traditionally been less inclined to spend on defence, could result in immediate cuts in 2012 or even the cancellation of the 2009-14 plan.

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## ASIA PACIFIC



An Indian Prithvi-II surface-to-surface strategic ballistic missile is fired from the Integrated Test Range (ITR) in Orissa state on 26 September.

PA Photos: 1440872

## India says Shaurya near production

India's Defence Research and Development Organisation (DRDO) successfully test-fired three of its nuclear-capable ballistic missiles in late September, confirming the operational parameters of one ahead of series production.

The two-stage, 10-m-long solid-fuel Shaurya (Courage) hypersonic missile was fired from the Integrated Test Range (ITR) on India's east coast on 24 September: its third test flight since its first in November 2008.

Officials said the non-line-of-sight battlefield missile climbed to an altitude of 40 km at Mach 7.5 and covered its 700 km range in 500 seconds before hitting within a few metres of its target in the Bay of Bengal. DRDO sources claim the Shaurya's range can be extended to around 1,300 km.

"Because of its element of surprise it [Shaurya] will surprise our adversaries and strengthen our strategic defence," said senior DRDO scientist W Selvamurthy, adding that it was difficult, if not impossible, to detect the missile via satellite imaging.

Avinash Chander, the DRDO's Chief Controller of Missiles and Strategic Systems, told reporters that the Shaurya's series production would now begin.

On 26 September the army also successfully tested an improved version of the Prithvi (Earth)-II: a surface-to-surface strategic ballistic missile with a range of 350 km, while on 30 September the DRDO successfully test-fired its two-stage, nuclear-capable Agni (Fire) 2 intermediate-range ballistic missile to a range of 2,000 km from the same location.

**Rahul Bedi**

*JDW Correspondent, New Delhi*

# Pakistan rules out ops against Haqqani network

**FARHAN BOKHARI** *JDW Correspondent*  
Islamabad

**T**he Pakistan Army has told the US that it is unwilling to launch a new campaign in the country's North Waziristan province against the Haqqani network: an Islamist group that Washington asserts has close links to Pakistan's intelligence community.

Tensions have increased since Admiral Mike Mullen, outgoing chairman of the US Joint Chiefs of Staff, told a US Senate hearing on 23 September that the Pakistan Army-run Inter Services Intelligence (ISI) agency maintained ties with the Haqqani network,

- The Pakistan Army has said it is reluctant to launch an attack against the Haqqani network
- The US asserts that Pakistan's intelligence agency maintains links with the Islamist group

which the US says is responsible for attacks on international troops in Afghanistan. Pakistani officials said Adm Mullen's remarks indicated that the US might act against suspected Haqqani sanctuaries in North Waziristan, which borders Afghanistan, unless Islamabad ordered military action of its own. In the past decade, between a quarter and a third of the Pakistan

Army's troops have been deployed in its border areas.

On 29 September Prime Minister Yusuf Raza Gilani hosted an All Parties Conference in Islamabad, inviting representatives of the main political parties to discuss future policy on ties with the US. Also present were General Ashfaq Pervez Kayani, the army's Chief of Staff, and Lieutenant General Ahmed Shuja Pasha, Director General of the ISI. "The army and the ISI made it very clear that a campaign across North Waziristan is just not feasible at this time. Our forces are already overstretched," a senior Pakistani government official told *Jane's*.

Western defence officials in Islamabad told *Jane's* that a recent decision by the Obama administration to hold back USD800 million in military assistance had reduced Washington's leverage over the Pakistani Army. The US suspended the funds after Pakistan expelled more than 100 US military trainers in protest at the raid by US special forces that led to the death of Al-Qaeda leader Osama bin Laden. The US carried out the 1 May raid in the northern city of Abbottabad without telling Pakistan. ■

## Indian Neptune makes maiden flight

**The first Boeing P-8I Neptune maritime multimission aircraft for the Indian Navy (IN) made its maiden flight from the company's Renton facility near Seattle on 28 September.**

Boeing said the two-and-a-half-hour flight saw its test pilots undertake airborne systems checks including engine accelerations and decelerations and autopilot flight modes. During the sortie the aircraft – serial number IN 320, but flying on US serial number N393DS – reached an altitude of 41,000 ft.

This first flight will be followed over the coming weeks by mission systems installation and checkout work on the aircraft at a company facility near Boeing Field, Seattle, a statement noted.

The P-8I, which is based on the P-8A Poseidon, differs from the US Navy variant aircraft in that it will be equipped with an aft-facing radar (to operate independently of



The first of eight P-8I aircraft for the Indian Navy leaves Renton, Seattle, on its maiden flight on 28 September.

Boeing: 1398737

the forward-facing Raytheon AN/APY-10 surface search sensor) providing full-hemisphere coverage and an aerial target tracking capability. A magnetic anomaly detection (MAD) system will also be fitted and the aircraft will be compatible with the use of depth charges.

Earlier this year India requested the sale of 32 Raytheon Mk 54 lightweight torpedoes for its P-8Is, although it is unclear if these would be supplied with the company's Fish Hawk wing-kit to increase their launch envelope and range.

This Defense Security Co-operation Agency (DSCA) notification followed an earlier request for 24 Boeing AGM-84L Harpoon II anti-ship missiles. The P-8I would also be compatible with the AGM-84H SLAM-ER stand-off cruise missile and be capable of dropping naval mines.

Handover of the first of eight aircraft to the IN is on track for 2013, Boeing said, with the remaining seven aircraft set for delivery by the end of 2015.

**Gareth Jennings** *Jane's*  
*Aviation Desk Editor, London*



# Japan, Philippines agree 'strategic' ties

JAMES HARDY *JDW Asia-Pacific Editor*  
London

**Philippines President Benigno Aquino has secured Japanese Prime Minister Yoshihiko Noda's support for Manila's position on the South China Sea dispute.**

The Philippines and Japan agreed to boost their ties to a "strategic" level in a joint statement signed by both leaders at the end of Aquino's 25-28 September visit to Tokyo. The statement also reiterated their support for "freedom of navigation, unimpeded commerce and compliance with established international law, including the UNCLOS [UN Convention on the Law of the Sea] and the peaceful settlement of disputes" in the South China Sea.

The statement also elevated the relationship between the two countries to that of a strategic

- Japan has signed a 'strategic partnership' with the Philippines that endorses Manila's position on the South China Sea
- The two countries have agreed to continue deepening mutual maritime exchanges

partnership, although this refers to the depth of trade rather than defence relations. Japan is the Philippines' largest economic partner with trade worth USD14.5 billion a year, according to figures from Manila.

The two countries have also agreed to continue a bilateral dialogue on maritime and oceanic affairs, the first of which was held on 9 September. Tokyo will send Japan Coast Guard vessels to the

## COMMENT

**The emergence of Japan, which has its own territorial dispute with China in the East China Sea, as a strategic partner of the Philippines is the latest example of Washington's Asia-Pacific allies cementing bilateral ties in the face of heightened concerns at Beijing's regional intentions.**

Japan has signed a strategic partnership with Australia and is looking to do so with South Korea, although the political sensitivity in Seoul of such a relationship has kept negotiations out of the spotlight.

The language of the bilateral statement echoes the US' position on the South China Sea, emphasising freedom of navigation and compliance with international law. Before his visit to Tokyo,

Aquino spokesman Herminio Coloma told the AFP news agency: "Just like the US, Japan is also a stakeholder in the quest for peace and stability in the [South China Sea]. So this is a matter of common interest to the two countries."

China does not see the situation this way. The state-run Xinhua news agency responded to Aquino's Tokyo visit with a bellicose commentary that will do little to calm regional concerns over Beijing's designs on the South China Sea, which it has designated a "core interest". "Even if the Philippines reaches out to Japan, and Vietnam tries to draw India to its side, the so-called 'third party' invited to the South China Sea disputes can hardly match China in regional strength and influence, let alone counterbalance and contain China," the commentary said.

Philippines to "support ... capacity building" and will arrange reciprocal visits between the heads of each

nations' navies, as well as port calls by Japan Maritime Self-Defence Force ships in the Philippines. ■

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# ASIA PACIFIC

## Taiwan close to receiving EC 225s

Taiwan's Ministry of National Defence (MND) says it expects to take delivery of three Eurocopter EC 225 Super Pumas by the end of 2011.

MND officials say the medium-lift helicopters will become fully operational by the second half of next year.

The USD111 million contract was awarded to Eurocopter in December 2009 and was signed in February 2010. Republic of China Air Force (RoCAF) flight and ground crews completed training in France earlier this year.

Taiwan announced the purchase of the three helicopters following Typhoon Morakot, which left more than 500 people dead when it struck the island in August 2009.

Gavin Phipps

*JDW Correspondent, Taipei*

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# Seoul 'working on supersonic cruise missile'

SEBASTIEN FALLETTI *JDW Correspondent*

Seoul

**S**outh Korea is developing a supersonic cruise missile capable of destroying North Korean coastal artillery positions and an indigenous missile defence system, according to several defence sources.

The supersonic version of the existing anti-ship Haeseong (Sea Star, or SSM-700K) missile – provisionally named the Haeseong II – will be able to strike ground targets from an Aegis-type destroyer,

- South Korea is developing a supersonic cruise missile
- The missile would be capable of destroying North Korean coastal artillery positions

a source at the Defence Acquisition Programme Administration (DAPA) told *Jane's*.

DAPA refused to officially confirm the existence of the missile, which, according to US diplomatic cables revealed by the WikiLeaks

website, weighs 1,000 kg and was test-fired a dozen times from 2007 to 2009 in Anheung Province.

The Haeseong II would see South Korea join the few countries with a supersonic cruise missile capability, including the US, Russia, China, France and India. "This is very ambitious. It could take a decade of development if they do not get technological transfer from the US," a Western industry source in Seoul told *Jane's*. "This is all about flexing their muscles at North Korea."

The development of a supersonic missile is "a way to bypass the limitation imposed by the US on ballistic missiles", Baek Seung-joo of the Korea Institute for Defence Analysis (KIDA) told *Jane's*. South Korea is a member of the US-led Missile Technology Control Regime, which limits the range of its ballistic missiles to 300 km.

Meanwhile, Seoul has launched a programme to develop its own anti-ballistic missile defence system that would be as advanced as the US-built Patriot system, Yonhap news agency reported.

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## In Brief

**China unveils Z-5 unmanned helo**

An advanced unmanned helicopter, the Z-5, made its first public appearance at Aviation Expo China 2011, which ran from 21-24 September in Beijing. The Z-5 was developed by the 60th Research Institute of the PLA Headquarters of the General Staff Department, which also makes the Z-3 drone. Based on images that show the Z-5 next to a Z-3, the new unmanned vehicle is about 5.4 m long: twice the length of the Z-3. An official said that the Z-5 has "multiple advanced technologies", including a measurement and control system, navigation technology, sensors, automatic control systems and image transmission.

**China launches third Type 071 LPD**

China launched its third Yuzhao-class (Type 071) landing platform dock (LPD) amphibious assault ship at the Hudong-Zhonghua Shipyard in Shanghai on 25 September. This follows the launch on 18 November 2010 of the second Type 071 LPD, which began sea trials in September 2011. The launch of the third LPD suggests the People's Liberation Army Navy (PLAN) has settled on a final design since the launch of the lead ship in 2006.

**NZ opens Cyber Security Centre**

The New Zealand government on 27 September opened its National Cyber Security Centre, which is tasked with defending government agencies and critical national infrastructure organisations from cyber threats. The centre plans to improve the country's cyber security capabilities, which were outlined in the governments Cyber Security Strategy report. Priority areas include increasing awareness and online security measures; protecting government systems and information; and strengthening incident response and planning.

**Thailand approves Fennec buy**

Thailand's Cabinet approved on 27 September the Royal Thai Army (RTA) purchase of Eurocopter AS 500 Fennec light attack/utility helicopters but rejected a proposal for more Sikorsky UH-60 Black Hawks. The government allocated THB1.596 billion (USD52 million) for the purchase of eight AS 500 Fennecs but a THB2.8 billion plan to buy two Black Hawks was returned to the RTA for revision. The RTA is expected to resubmit the Black Hawk bid in October.

# Airbus Military wants in on RAAF transport contest



EADS CASA:1165660



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**JULIAN KERR** *JDW Correspondent*  
Canberra

**T**he replacement for the Royal Australian Air Force's (RAAF's) de Havilland Canada DHC-4 Caribou tactical transports should be chosen by

open competition rather than sole source selection, Airbus Military Chief Executive Domingo Urena told *Jane's* on 28 September.

"We'll have to wait until the requirements are released before we can confirm our ability to meet them, but the C-295M has won four of the past five competitions in which it has been involved and we look to an open competition for it to prove its value to the Australian taxpayer," he said.

Domingo was speaking in Canberra following meetings with Defence Materiel Minister Jason Clare and Air Force chief Air Mar-

- Airbus Military's CEO has called for Australia to open up its light transport replacement programme to competition
- Australia is yet to replace its DHC-4 Caribou fleet

shal Geoff Brown.

The RAAF's last 14 Caribous were retired at the end of 2009. Preliminary approval is expected in early 2012 for a programme to replace them with 10 fixed-wing light tactical transports.

The RAAF tried to replace the Caribou in 2000 when the C-295M and the Alenia Aeronautica C-27J Spartan went head-to-head for a 12- to 18-aircraft contract.

The C-295M is believed to have headed the evaluation, but the competition was cancelled before a preferred bidder was announced. The RAAF is believed to favour the

Airbus Military wants to enter its C-295M (left) to meet Australia's light tactical transport requirement. Alenia's C-27J Spartan (centre) is also a likely contender for the competition to replace the DHC-4 Caribou fleet (above), which was retired in 2009.

C-27J because it shares a number of systems with the service's 12 Lockheed Martin C-130J Hercules medium transports.

Urena also said the third of the RAAF's five KC-30A multirole tanker transports would be delivered shortly, the fourth by the end of the year and the fifth in May 2012.

No contentious commercial issues remain but the RAAF had requested improvements to the mission planning system and to the refuelling boom operator's human-machine interface, he said. "These are not problems, just normal evolutions of the product," Urena added. ■

## Australia plans to buy sixth Globemaster

**Australia has issued a letter of request to the United States for an additional Boeing C-17 Globemaster III airlifter, Canberra announced on 23 September.**

Should the purchase go ahead the aircraft will be acquired under the US Foreign Military Sale (FMS) mechanism and will be the sixth C-17 to be operated by the Royal Australian Air Force (RAAF). Based on the cost of previous C-17 sales, the value of the deal would be around USD300 million.

"A sixth C-17 would give the gov-

ernment increased options to support a wider range of contingencies that might require heavy-lift aircraft," said Australian Defence Minister Stephen Smith.

He added: "Advice from [the Australian Department of Defence] is that a sixth aircraft would double the number of C-17 aircraft available for operations at any one time compared to four aircraft."

● Meanwhile, Australia has approved the purchase of 12 fast landing craft from Navantia to be integrated onto the two Canberra-

class landing helicopter dock (LHD) ships that were designed by the Spanish boat builder and are expected to enter service with the Royal Australian Navy (RAN) from 2014.

A statement by the Australian Department of Defence (DoD) on 27 September said the purchase of the Navantia LCM-1E platform is cost-capped between AUD300 million (USD296 million) and AUD500 million.

**Jon Grevatt** *Jane's Asia-Pacific Industry Reporter, Bangkok*

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# MIDDLE EAST/AFRICA

## IQAF takes on pilot training role

**T**he Iraqi Air Force (IQAF) has assumed sole responsibility for training its fixed-wing pilots, with the US Air Force's (USAF's) 52nd Expeditionary Flying Training Squadron (EFTS) having flown its final advisory mission under the current security agreement on 5 September.

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GARETH JENNINGS *Jane's Aviation Desk Editor*  
London

T-6A Texan II turboprop instructor pilots emerging from the joint programme, the IQAF's 203 Training Squadron (TS) is now capable of conducting its own fixed-wing training operations ahead of the planned withdrawal of US personnel from the country at the end of the year.

According to the USAF, it takes approximately 18 months and more than 280 flight and simulator hours to produce an instructor pilot. The goal is to have 30 IQAF instructor pilots: two for every T-6A aircraft in the inventory. ■

Go to [jdw.janes.com](http://jdw.janes.com) for more of this article



IQAF and USAF pilots fly in formation during one of the last training flights for the 52nd EFTS and 203 TS over Iraq. Advisors from the 52nd EFTS turned over flight training operations to the IQAF on 5 September.

US Air Force: 1398730

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#### ANALYSIS

**The establishment of its own organic training capability marks an important milestone for the fledgling IQAF. It is one of a number of initiatives underway as Iraq prepares for the withdrawal of the final US military support units left in the country.**

With its training efforts ongoing, the IQAF fields an organic intelligence, surveillance and reconnaissance (ISR) and light attack capability with its electro-optic/infrared (EO/IR)-sensor-equipped Hawker Beechcraft King Air 350ERs, Seabird SB7L-360 Seekers and JAI SAMA CH2000 MTSAs, as well as its EO/IR-system-equipped and AGM-114 Hellfire-armed A208B Combat Caravans.

The IQAF has also been operating its three Lockheed Martin C-130E Hercules transport aircraft out of New Al Muthenna (Baghdad International Airport) independently of US support for several months.

While the Iraqis are now largely self-sufficient in conducting fixed-wing operations within their borders, they are still dependent on the US to defend the nation's airspace from external threats. As part of the wider effort to assume full control of its operations, the IQAF is to field a Lockheed Martin AN/FPS-117 or AN/TPS-77 air traffic control and air defence radar in the not-too-distant future, according to a Department of Defense (DoD) contract announced on 9 May.

In addition to the long-range radar, the IQAF is also looking to field Lockheed Martin F-16 Fighting Falcons. On 27 September US government and industry officials confirmed to *Jane's* that an agreement had been made to buy an initial 18 F-16s for the IQAF.

# IDF protests \$800m defence budget cut

YAAKOV KATZ *JDW Correspondent*  
Tel Aviv

**The Israeli government is to cut the country's defence budget by USD800 million: a move the Israel Defence Force (IDF) has warned will undermine the military's ability to prepare for the growing challenges it faces in the Middle East.**

The decision to cut the budget was made on 26 September by Prime Minister Benjamin Netanyahu and Defence Minister Ehud Barak in order to help finance tax breaks the government is offering in response to a series of demonstrations held over the summer against the government's economic policies.

IDF Chief of General Staff Lieutenant General Benny Gantz is working to overturn the decision.

The IDF had originally asked the government for a increase of around USD1.5 billion to its annual budget due to the ongoing upheaval throughout the Middle East and concern with the future of Israel's peace treaty with Egypt. The defence budget is now expected to be USD13.6 billion.

A senior IDF officer from the Planning Directorate told *Jane's* on 26 September that the military would need to review the 'Halamish' multi-year procurement plan the General Staff approved over the summer, which was supposed to lead to a major boost in the IDF's offensive and defensive capabilities.

"The IDF will not collapse overnight but in a number of years; if the budget cuts continue

the military will look completely different," the officer said. "With all of the changes in the Middle East and the possibility that new threats are emerging, it is very difficult to understand how the government can now cut the defence budget."

While the IDF has come out strongly against the planned budget cuts, Barak has backed the move.

"The defence establishment needs to

carry part of the social burden and contribute to the economic changes," Barak said on 26 September.

The Halamish plan was supposed to see the integration of precision-guided surface-to-surface missiles (SSMs), the procurement of a second squadron of F-35 Joint Strike Fighters, the production of Namer armoured personnel carriers in the US and the procurement of new corvettes for the Israel Navy. ■

## IDF to hold large-scale exercises in US EUCOM

Israel and the US will hold a large-scale military exercise in 2012, during which the Israel Defence Force (IDF) will establish command posts at the US European Command (EUCOM's) headquarters in Germany for the first time.

The exercise, to be called 'Austere Challenge', will be held early in 2012 and will see the deployment of US soldiers in Israel and Israeli soldiers in Germany. IDF sources said the goal of the drill was to increase interoperability between the IDF and EUCOM, and to create infrastructure to establish joint task forces in the event of a war.

After 'Austere Challenge', the IDF and EUCOM are scheduled to hold 'Juniper Cobra 12': the annual joint missile defence exercise in Israel. The exercise is expected to involve the launching of interceptors and will include the deployment of the Arrow-2 ballistic missile defence system, the Iron Dome counter-rocket system and the US' Terminal High-Altitude Area Defense (THAAD), Aegis radar and Patriot PAC-3 air defence systems.

Yaakov Katz *JDW Correspondent, Tel Aviv*

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## BUSINESS

# TKMS talks may test German legislation

GUY ANDERSON *Jane's Defense Industry Editor*  
London

**U**K private equity fund Star Capital Partners has been identified as the company in exclusive talks to buy the bulk of ThyssenKrupp Marine Systems' (TKMS) Blohm + Voss marine interests: a deal that may test German tolerance of foreign and international financial involvement in national strategic industries.

Star Capital, which has existing interests ranging from care homes to broadband cable services and salt mines in Germany, was identified by news services such as the *Financial Times* and Bloomberg. Star

- Star Capital is slated to buy core Blohm + Voss naval interests from TKMS
- The deal may test German tolerance of foreign private equity ownership

Capital did not respond to requests for comment, while TKMS reiterated that the potential purchaser was a "European financial investor".

News that TKMS was in talks with a non-strategic investor emerged earlier in 2011, while the company said in July that it was seeking a buyer for the majority of the Blohm + Voss businesses after

TKMS and stalking horse bidder Lürssen have exposure to the F125 frigate programme through the ARGE consortium.



ARGE: 1165993

## ANALYSIS

**Germany introduced stringent laws over the past decade to defend national strategic assets from foreign suitors: legislation that was drafted in part because of previous private equity interest in its military and naval domains.**

Past sales of defence ventures have also fallen foul of government intervention, with the German state having dissuaded a number of foreign companies – including

Thales and Saab – from participating in the bidding process that led to the sale of marine systems house Atlas Elektronik in 2005. Atlas was subsequently purchased by the Franco-German ThyssenKrupp/EADS consortium.

Germany's Bundesrat first passed legislation in 2004 to give the federal government a veto over foreign acquisitions of stakes greater than 25 per cent in its domestic defence operations. This was passed partly as a result of the EquityOne

the collapse of a planned deal with Abu Dhabi MAR.

TKMS added on 26 September that the discussions relate to its Blohm + Voss Shipyard (a maker of large yachts); Blohm + Voss Repair (which provides repair, refit and maintenance services); and Blohm + Voss Industries (a supplier of products ranging from bilge water separators to stabilisers and steering gear systems).

The core naval interests of Blohm + Voss – covering naval systems engineering services – have been ring-fenced from the deal, although Blohm + Voss Industries has some exposure to the naval domains through the provision of shaft components for submarine platforms.

It remains to be seen whether these naval interests will be ring-fenced from any deal and whether the German state would tolerate the foreign, private equity ownership of a national company with strategic exposure. The German state maintains far-reaching powers to veto the acquisition of defence industrial assets.

TKMS' financial investor was previously understood to have had competition from German yacht and naval surface ships group Lürssen. Lürssen submitted an unsolicited bid for the whole of the Blohm + Voss domain – including the naval systems engineering business – earlier this month. TKMS confirmed receipt of the offer, but said it had "considerable doubts" about the proposal.

Star Capital's current portfolio includes Eversholt Rail Group in the UK, Pepcorn (a German cable communications services provider), GSES (a German salt mine operator) and Oxford Aviation Academy in the UK. Established in 2000, it has funds of EUR1 billion under management. ■

## In Brief

### Former diplomat to lead Boeing Brazil

Boeing has appointed former US diplomat Donna Hrinak to the newly created position of president of Boeing Brazil. Hrinak has served as US ambassador to Brazil, Venezuela and Bolivia. Her appointment (announced on 28 September) came as Boeing vies to win the Brazilian F-X2 fighter programme with the Super Hornet.

### Vietnam, Netherlands sign MoU

Vietnam and the Netherlands have signed an agreement outlining co-operation in a range of defence and military activities including potential joint production programmes. The countries have a history of co-operation in naval shipbuilding. Vietnam has also signed co-operation agreements with Bulgaria, the Czech Republic, France, Germany, India, Poland, Romania, Russia, South Korea and the UK over the last two years.

### Ultra to continue cyber pursuits

Ultra Electronics has acquired AEP Networks, a supplier of cyber-security services, for an initial sum of USD57.5 million. AEP – which operates from the UK, US, Malaysia and Australia – provides secure network communications solutions. The deal marked Ultra's 43rd acquisition since 1995.

### New CEO for Smith & Wesson

Smith & Wesson confirmed on 28 September that its chief executive of seven years, Michael Golden, will stand down and firearms division president P James Debney will take over at the helm. Golden and the board said that they felt the timing was right for change.

purchase of Kiel submarine shipyard HDW.

The Foreign Trade and Payments Act and the Foreign Trade and Payments Regulation were strengthened the following year to allow the defence of companies with tangential exposure to military domains. This was again in response to private equity interest, in this case KKR's purchase of diesel-engine producer MTU Friedrichshafen. Germany went even further in 2008 to head off the perceived interest of sovereign wealth funds.

Whether Germany will apply its powers harshly in the current financial climate remains to be seen.

The country has on occasion proved tolerant of private equity interest, as shown when Swedish venture capital firm EQT was permitted to acquire MTU Friedrichshafen from Daimler in 2006. Likewise, the state may rule that the naval exposure of the Blohm + Voss ventures is sufficiently marginal to fall outside the strategic domains.

## BUSINESS

# Indian MoD puts MDL-Pipavav JV on hold...

JON GREVATT *Jane's Asia-Pacific Industry Reporter*  
Bangkok

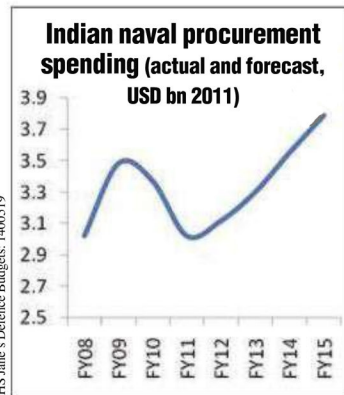
**I**ndia's Ministry of Defence (MoD) has put a joint venture (JV) between Mazagon Dock Limited (MDL) and Pipavav Defence on hold after it received complaints from the country's private shipbuilding sector that the partnership agreement lacked transparency.

The JV was announced by Pipavav earlier in September. The private company said at the time that its partnership with state-run MDL would focus on the "construction of front-line warships for the Indian Navy". The JV would also become the first formal public-private partnership (PPP) in naval construction in India.

Defence Minister A K Antony said in statement on 26 September that the MoD will delay the formation of the JV "until a policy on JVs is put in place by the government". He did not elaborate, but it is understood that he is refer-

● Reservations expressed by India's shipbuilders have forced the MoD to put on hold a JV between Mazagon and Pipavav

ring to procedures related to the government's increasing moves to encourage PPPs in naval construction. Antony added that the MoD will study the complaints received from private shipyards



about the proposed MDL-Pipavav partnership. "The issue needs to be fully examined and settled before any forward movement takes place," he said. With further reference to the MoD's promotion of PPPs, Antony said that India is "treading a new path and ... would like to ensure that transparency is maintained at all levels".

Following the announcement of the MDL-Pipavav JV, private shipyards in India – including Larsen & Toubro (L&T), ABG Shipyard and Bharati Shipyard – are understood to have sent letters to the MoD complaining about the manner in which MDL selected Pipavav as its JV partner. An official from L&T told *Jane's* on 26 September that the group of private shipbuilders "found the whole process unacceptable". He added: "Our point is not that the JV was formed with Pipavav or any private shipyard; our point is that there should be a process [to select JVs]. You can't arbitrarily decide that so and so will do this and so and so will do that."

The L&T official said private shipbuilders were asked by MDL to submit business plans detailing their plans for a JV with the state-run company on 25 August. The official claimed: "Before we could come back with the business plan, on 9 September Pipavav announced the JV with MDL."

Pipavav and MDL have yet to formally respond to the criticism and spokespersons from both companies could not be reached for

## ANALYSIS

**The MDL-Pipavav JV is designed to conform to India's PPP objective, which is geared towards addressing increasing capacity issues at state-run companies while building capability within the private sector.**

The MDL-Pipavav JV would be based at Pipavav's expansive facilities in Gujarat on India's west coast, to which MDL would transfer existing work while its own shipbuilding facilities are focused on constructing six Scorpene submarines, three Kolkata-class destroyers and three Shivalik-class stealth frigates.

All three projects have been delayed by several years. The JV would be well positioned to win new naval construction orders, given MDL's status as a government company and, therefore, a preferred supplier to the MoD.

In March 2011 India's Comptroller and Auditor General (CAG) severely criticised some of India's major naval shipbuilding projects, all of which are being undertaken by state-run shipyards and most of which have been delayed. The CAG said problems with the respective projects were partly due to "grossly inadequate infrastructure".

comment. However, H S Malhi, the chairman and managing director of MDL, told India's *The Economic Times* newspaper on 22 September that the selection of Pipavav as a JV partner was conducted fairly. "The selection [was] done following due process and diligence," he said. ■

## ...while Pipavav and Airbus reveal Indian aerospace venture

**India's Pipavav Defence and Offshore Engineering Company Limited (formerly known as Pipavav Shipyard) and EADS subsidiary Airbus have signed an agreement to form a joint venture (JV) offering maintenance, repair and overhaul (MRO) facilities for military and civilian aircraft in India.**

Under the terms of a memorandum of understanding (MoU) announced on 28 September, the two companies will invest up to USD100 million in developing the MRO facilities and related infrastructure. MRO services will later be offered through the JV, in which Pipavav will own 74 per cent and Airbus/EADS will hold the rest.

The deal will, therefore, be compliant with Indian foreign direct investment

(FDI) rules for the defence sector.

Pipavav added that the European company may increase its holding in the JV to 49 per cent at a later date. This potential increase would be permitted should the Indian government relax FDI rules. New Delhi has been deliberating such a move for some time, although the defence ministry is known to be in opposition.

*Jane's* understands that Pipavav and EADS are now formalising their JV proposal with a view to submitting a bid to the Indian Foreign Investment Board later this year or early next year. Details such as the name of the JV and its location are still to be finalised.

It is also possible that the proposal will include a third party in India that has established capabilities in the aerospace

sector. Pipavav's core capabilities are traditionally in the shipbuilding sector but the group is expanding into other defence sectors rapidly.

Industrial collaboration agreements intended to boost capabilities in defence electronics and systems integration, for example, have been signed during the past year with Saab and Northrop Grumman.

In the shipbuilding sector Pipavav has signed similar co-operation pacts with the UK's Babcock International, which could see the two groups bidding to construct aircraft carriers for the Indian Navy; Russian export agency Rosoboronexport, which is intended to position Pipavav as a constructor of Russian naval ships in India as well as

supporting those already in service; and Indian state-owned naval shipbuilder Mazagon Dock Limited.

The latter of these accords is also intended to form a JV in India to build warships, although the Ministry of Defence announced on 26 September that the partnership had been "put on hold" while it reviews the JV agreement.

For EADS the partnership with Pipavav would represent its second JV in India. EADS has also formed a JV with Larsen & Toubro – which was approved by Indian authorities in January 2011 – that is focused on defence electronics, such as electronic warfare systems, avionics and radars. Additionally, the group opened a research and development centre in Bangalore in December 2009.

**Jon Grevatt** *Jane's Asia-Pacific Industry Reporter, Bangkok*



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# BUSINESS

## Russia plans part privatisation for T-90 concern

GUY ANDERSON *Jane's Defence Industry Editor*  
London

**U**ralvagonzavod, the Russian state-owned company behind the T-72 and T-90 main battle tanks (MBTs), is heading towards a partial privatisation from 2013.

The plan to sell up to 25 per cent of the iconic, 75-year-old group is part of Moscow's wider strategy to divest state-controlled assets valued at up to RUR1.2 trillion (USD36 billion). The aim of the sales is to offset industrial loans paid to support strategic ventures during the financial crisis and to drive a modernisation agenda.

Confirmation of the partial sale of Uralvagonzavod came from its deputy chief executive, Ruslan Kondrashov, via Bloomberg and Russian state information services.

The partial privatisation of Uralvagonzavod has – in common with its Russian industrial complex stablemates – been under consideration since about 2006.

The latest move follows Russia's aborted USD500 million initial public offering (IPO) of state-controlled rotary-wing holding group Russian Helicopters earlier this year.

Updated privatisation reports follow a challenging time for Ural-

vagonzavod. The company has been burdened by debts that are believed to total RUR33 billion. It issued bonds valued at RUR3 billion in March and received loan guarantees from the government during 2010 valued at RUR10 billion.

While Uralvagonzavod's history as a manufacturer of heavy armoured systems predates the Second World War, the company has faced criticism from the government in recent times.

Russian Defence Minister Anatoly Serdyukov attacked earlier this year the lack of advanced technology in the design of Uralvagonzavod's latest product: the T-90S main battle tank.

A dearth of state and export orders beyond an existing three-year deal to provide Russia with 189 T-90s has also left the industrial group heavily reliant on its commercial interests. The sale of products such as rolling stock and related heavy engineering projects currently account for about 75 per cent of revenues.

Beyond the T-90, Uralvagonzavod also offers the BREM-1M armoured repair and recovery vehicle and the BMR-3M armoured mine-clearing vehicle. ■



The T-90S MBT is Uralvagonzavod's latest offering, but its lack of advanced technology has been criticised by Russia's defence minister.

Uralvagonzavod:1296614

### ANALYSIS

**Uralvagonzavod is understood to fall under the aegis of the monolithic Russian Technologies Corporation (Rosstechnologii): the state-controlled holding organisation that sits above more than 300 of Russia's leading ventures including automaker AutoVaz and titanium giant VSMPO-Avisma.**

Former Russian defence minister and current director general of Rosstechnologii Sergei Chemezov said in November 2010 that subsidiary ventures within the organisation were likely to come to market.

Beyond Uralvagonzavod, the potential for a renewed sale of Russian Helicopters remains plausible along with companies such as Associated Engine Corporation, the Ural Optical-Mechanical Plant, the Tactical Missile Armament Corporation or potentially Kalashnikov assault rifle manufacturer Izhmash.

Privatisation fits with three key goals Russia is looking for: joining the top five world economies by 2020; recapitalising its military inventories by 2020-25; and recouping costs associated with bailing out state ventures during the economic downturn of recent years. The first two aims both necessitate significant invest-

ment to modernise production facilities and working practices.

### Uralvagonzavod sale – outlook

The route to market likely to be taken by Russia when it comes to sell a stake in Uralvagonzavod is open to question. Rather than an IPO, a strategic sale appears the most plausible option.

The sale of a stake to a foreign entity would be permitted under Russian law: the 25 per cent holding would fall below the 50 per cent threshold for strategic industries outlined in Law No57-FZ of 2008. A foreign sale remains implausible, however, and a domestic investor is more likely to be sought. For example, the fit between Uralvagonzavod and the interests of Russian Machines (controlled by the international tycoon Oleg Derepaska) is easy to see. Russian Machines encompasses both the BNK light armoured vehicles company and the RKTМ and Abakanvagonmash rail manufacturing concerns.

Finally, Russia is likely to be mindful of recent lessons should an open market sale be pursued. The USD500 million IPO of Russian Helicopters was abandoned in early 2011, apparently because of investor concerns regarding the value placed on the company and a perceived lack of clarity surrounding the sale offer.

## Indonesia, China confirm C-705 missile project

**Indonesia's Ministry of Defence (MoD) has confirmed that local companies will collaborate with their Chinese counterparts on the production of C-705 surface-to-surface missiles to be fitted onto Indonesia's indigenously constructed KCR-40 (Kapal Cepat Rudal) fast attack craft.**

The Indonesian MoD said on 27 September that the missile would be co-produced under the terms of a letter

of intent (LoI) signed earlier in 2011 with China, which also covered collaboration over Indonesia's production of the larger C-802 anti-ship cruise missile, which is being fitted onto the fleet of Lürsen PB-57 large patrol craft operated by the Indonesian Navy (the Tentara Nasional Indonesia Angkatan Laut, TNI-AL).

The C-705 and C-802 were developed by the China Aerospace Science & Industry Corporation and marketed for export

to Indonesia by the China Precision Machinery Import-Export Corporation (CPMIEC). In Indonesia the missiles are being produced under licence by state-owned PT Pindad.

The programme, according to MoD Secretary General Eris Herryanto, is indicative of Indonesia's commitment to secure technology transfer on all major acquisitions.

Two KCR-40 vessels have been ordered

by the TNI-AL, with the first of these being launched in February 2011.

This vessel was not fitted with any weapons at the time of launch, with Indonesia indicating that C-705s would be installed at a later date. The TNI-AL expects to order an additional 20 KCR-40 vessels. The constructor of the first two platforms is PT Palindo Marine and further orders of the KCR-40s are likely to be awarded to this shipbuilder as well as state-owned PT Pal.

**Jon Grevall** *Jane's Asia-Pacific Industry Reporter, Bangkok*

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PUMAAE

RANGE - 15 km  
ENDURANCE - 2 hours  
WEIGHT - 13 lbs (5.9 kg)



## BRIEFING

## US ARMoured VEHICLES

# Protection bracket

The US armoured vehicle market is facing a challenging time in the face of budget cuts. Christopher F Foss and Daniel Wasserbly report on the latest programme developments

**T**he US Army's latest big-ticket development project is the Ground Combat Vehicle (GCV) programme, which is to be an infantry fighting vehicle (IFV) that service leadership has directed to be produced within a seven-year timeframe.

The GCV's lineage can be indirectly traced back to the Crusader self-propelled howitzer (SPH) that was cancelled in 2002 and eventually replaced with the Non Line-of-Sight Cannon (NLOS-C) variant – an advanced SPH – of the Future Combat Systems' Manned Ground Vehicle (MGV) element.

The MGV family of vehicles was cancelled in 2009, at which point the army said it still preferred to obtain a new SPH under a follow-on programme. However, the service began shifting its focus away from fires and

toward empowering squad-level operations and accordingly decided to pursue an IFV that could carry an entire squad instead of a mobile howitzer for the GCV project.

In lieu of Crusader or MGV, the army cur-

rently plans to update its fleet of M109 Paladin 155 mm SPH vehicles with 440 sets of modernised platforms. A set includes one M109A6 Paladin Integrated Management (PIM) vehicle and its complementary Field Artillery Ammunition Supply Vehicle (FAASV).

Developmental testing has begun for PIM systems and a low-rate initial production decision is slated for sometime in Fiscal Year 2013 (FY13), according to Roy Perkins, director of business development for the Heavy Brigade Combat Team at BAE Systems, which builds the Paladin.

Meanwhile, in August the army started a technology development phase (TDP) for its GCV programme with the award of two contracts worth a total of nearly USD890 million for bids from competing teams led by General Dynamics Land Systems (GDLS) and BAE Systems.

A third team headed by Science Applications International Corporation (SAIC) was not awarded a contract, which was noteworthy as the army had previously said it could take up to three industry teams into the TDP.

SAIC's team – which includes US company Boeing and Germany's Krauss-Maffei Wegmann (KMW) and Rheinmetall Defence – then filed an award protest with the US Government Accountability Office (GAO), in part because it felt the army "relied on evaluation criteria outside its published request for proposals".

The GAO's official 'bid protest docket entry' indicates that the auditing agency has until 5 December to dismiss or uphold the complaint. In the meantime, the army has issued a stop-work order on the GCV.

The impact of the protest on the GCV's ambitious schedule could be minimal if auditors find no fault and dismiss the protest, but if the protest



The US army had been seeking a new SPH with the Crusader and NLOS-C, but is currently planning to buy a new IFV through the GCV programme and to modernise its **Paladin SPHs** to the PIM configuration.

BAE Systems: 1365413

is upheld or an agreement is reached whereby the army re-visits the programme's source selection process, then the GCV could suffer more significant delays. Additionally, the GCV is threatened by some 'recommended' cuts made by the four congressional defence committees, but each of these have to be reconciled to the same amount and then voted on for approval again and, finally, be approved by the White House.

An SAIC spokesperson told *Jane's* that the company decided to protest its exclusion from the GCV's initial phase because it believed there were "errors in the evaluation process" and that "several aspects of the bid may have been discounted because of a lack of familiarity with their non-American origins".

The SAIC team has explained that its proposal would leverage technology from the erstwhile MGCV programme, as well as from KMW and Rheinmetall's work on the Puma IFV.

GDLS' team, which won a USD440 million contract for the GCV's TDP, includes Lockheed Martin, Raytheon and Tognum America. The group said it was designing a platform around an established powerpack with a high-capacity diesel MTU 883 engine and an Allison X1100-series transmission.

The BAE Systems-Northrop Grumman team was awarded a USD450 million contract for the TDP and is taking a different approach by competing a vehicle powered by a hybrid electric drive (HED) system that uses QinetiQ North America's E-X-Drive electric-drive propulsion system.

Once the GCV programme emerges from the protest and completes its TDP stage, then army officials are planning to hold another full competition for a subsequent engineering and manufacturing development (EMD) phase.

However, the EMD phase is not preordained and the programme must first convince Pentagon procurement officials that design efforts are on track, requirements are up to date and more cost-effective options do not exist.

Any GCV IFV that the army buys is to have an 'average unit production cost' that falls between USD11 million and USD13 million, Colonel Andrew DiMarco, GCV project manager, told reporters in August. "We're using that ... range right now as a way to restrain our requirements set and what we can afford," he said.

## New Strykers

The army has so far received about half of the 450 new Stryker Double-V Hull (SDVH) vehicles that it is buying to deploy to Afghanistan as a means of better protecting soldiers from improvised explosive devices (IEDs).

Mike Cannon, senior vice president for ground combat systems at GDLS, which designed and builds the SDVH, said the total order of double-



Stryker vehicles have taken on various appliqué protection systems, such as **bar armour** pictured here, but the SDVH platforms integrate a new blast-resistant double-V hull.

PA Photos: 1125319

V hull platforms is expected to be complete sometime in February 2012.

About 180 SDVH vehicles were on the ground in Afghanistan and 140 of those were out in the field as of mid-September, Cannon told *Jane's*. The first of these new Stryker designs reached the field in June.

The army's order for 450 vehicles will provide more than the 330 Stryker platforms that typically constitute a Stryker Brigade Combat Team (SBCT) and some variants in an SBCT for Afghanistan will not include the new hulls. About 300 SDVHs will go toward this SBCT and the extra copies will be used for training or replacements.

Cannon said General Dynamics is expecting to receive another order for 292 SDVHs for a second brigade set before November. This would allow one SBCT set of double-V hull systems to always be operational while the other is undergoing 'reset' activities following deployment in Afghanistan's rugged terrain.

Pentagon testing officials reported in March that the SDVH "significantly" improves protection against IEDs compared with the original Stryker design.

Although the SDVH is an improvement – and testers noted that in some cases it reaches protection comparable to Mine-Resistant Ambush-Protected (MRAP) All-Terrain Vehicles (M-ATVs) – the hull design adds about 5,000 lb (2,267 kg) to the Stryker platform.

US Department of Defense (DoD) officials

requested operational tests to make sure this extra weight would not be detrimental to performance or cause an issue on steep slopes. Cannon said that an improved suspension system has allowed the SDVH to handle the extra load and succeed in its testing to date, with reliability that rivals or surpasses the legacy flat-bottom designs.

All SDVH orders so far have been for newly built Strykers, but the potential exists to swap out the flat-bottom hull on an existing vehicle with a double-V hull. Cannon said 16 medevac Strykers could be converted to the SDVH configuration under a possible bundled package that General Dynamics is offering to the army. Other than that, he said, "no plans have been made" to convert any other elements of the Stryker fleet to the double-V hull.

The DoD is also to consider granting approval to buy 100 of the latest Stryker variant – the Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) – for which the army requested USD733 million in FY12.

Cannon said a 'milestone' acquisition decision for starting the NBCRV's full-rate production is set for early December. "As far as I know there are no plans to convert any NBCRVs to the double-V," he added.

The NBCRV is the cornerstone of the army's mobile defences against nuclear, biological and chemical threats. It is currently in 'extended initial production' as it awaits the DoD decision.

Stryker NBCRV platforms are designed to

# BRIEFING

detect and collect information on contamination in their immediate environment using a suite of point and stand-off detectors.

A driver, a surveyor for analysing and collecting samples, an assistant surveyor for record keeping and a vehicle commander crew the platform, which can be sealed to protect its occupants from outside threats.

## Abrams upgrades

Meanwhile, the army is working to close its production line for the Abrams main battle tank (MBT). However, the US Congress is vying to keep the line running and all four congressional defence committees have so far voted in favour of adding at least some funding in FY12 to keep production open.

Army plans would see the production line closed in 2013 and then restarted for modernisation efforts around 2016 as the service believes this is the most cost-effective scheme; however, differing business cases in Congress are driving lawmakers to argue for keeping the line running continuously.

For example, Senate Armed Services Committee members in June voted in favour of adding USD322 million to upgrade an additional 49 M1A2s and thereby allow the army to preserve a “minimum industrial capability” while also upgrading a total of 70 Abrams MBTs through FY12.

Similarly, two House defence committees approved bills that would add USD272 million to the army’s USD181 million budget request for the Abrams upgrade programme and a Senate panel is seeking to add USD240 million. Variants of this legislation must all be reconciled and then signed by the president before becoming law.

House defence appropriators are specifically advocating for more Abrams MBTs to be upgraded to the M1A2 System Enhancement Package (SEP) configuration.

Lawmakers said that by the time the Abrams production line is planned to shut the army would have fielded the M1A2 SEP to 17 brigade combat teams in the active component, but most National Guard units would still be operating many of the older M1A1 Situational



**A Bradley Mortar Vehicle** with a 120 mm mortar and fitted with a roof-mounted protected weapon station armed with a .50 cal M2 HB machine gun. This example is also fitted with ERA.

BAE Systems: 1423174

Awareness (SA) models. Instead congressmen are advocating that the army consider fielding the M1A2 SEP tanks to active-duty and National Guard units.

These M1A2 SEP platforms are configured with a Commander’s Independent Thermal Viewer (CITV), air conditioning and equipment cooling systems, digitised equipment, improved and lighter-weight armour, a remote weapon station, an improved gun tube, a more efficient TIGER (Total InteGrated Engine Revitalisation) version of the AGT-1500 gas turbine engine and an Integrated Battle Command System.

M1A1 SA-configured Abrams MBTs are not significantly different from the SEP models. They include a biocular second-generation forward-looking infrared sensor in the gunner’s primary sight, a driver’s vision-enhancing thermal viewer, a digitised diagnostics system and the TIGER engine.

## The Bradley family

The US Army took delivery of just over 6,000 BAE Systems M2 Bradley IFVs and M3 Cavalry Fighting Vehicles (CFVs) in early 1995.

Since then the Bradley M2/M3 has undergone a number of upgrades, with the latest version called the A3 and featuring enhanced protection,

core electronic architecture, command-and-control improvements and increased target engagement capability.

All Bradley vehicles are fitted with a two-person turret armed with a stabilised ATK 25 mm M242 cannon and 7.62 mm co-axial machine gun with a twin Raytheon Tube-launched, Optically tracked, Wire-guided (TOW) missile launcher on the left side of the platform.

For operations in Iraq a significant number of Bradleys were upgraded with the Bradley Urban Survival Kit, which includes increased protection such as belly armour, explosive reactive armour (ERA) and ballistic shields for the commander and gunner, all of which has increased combat weight to 33 tonnes.

Looking ahead, the M2 Bradley will be replaced by the GCV. However, this platform will not be fielded in large numbers for some years and in the meantime the Bradley may be required to undergo another upgrade.

The US Army still deploys significant numbers of M113 series vehicles – the predecessor to the Bradley, the design of which is now more than 60 years old – for many of its key support functions including those in the ambulance, command post and mortar carrier roles. Nevertheless the platform lacks the protection and mobility to operate with the Abrams MBT and Bradley IFV and will have to be replaced in the future with the Armoured Multi-Purpose Vehicle (AMPV).

This AMPV could be a re-roled Bradley as there are already about 1,600 older Bradleys in US Army depots that have yet to be upgraded.

Additionally, BAE Systems has proposed the Bradley A3 Common Chassis Family of Vehicles (FoV) as a replacement for the M113 that, in addition to the baseline Bradley A3, would also include the Bradley Armoured Medical Evacuation Vehicle and Bradley Command Post (CP) vehicle with a higher roof line to provide greater internal volume.

The other two members of the FoV would include the Bradley Mortar Vehicle (MV) and Bradley General Purpose Vehicle (GPV). Each of these FoVs has the turret removed and diesel fuel cells moved to the vehicle exterior at the

The US Marine Corps deployed **M1A1 Abrams** MBTs to the Sangin River Valley in late November 2010, marking the first US MBT deployment to Afghanistan.

ISAF/Cpl Brian Gabriel Jr.  
1401659





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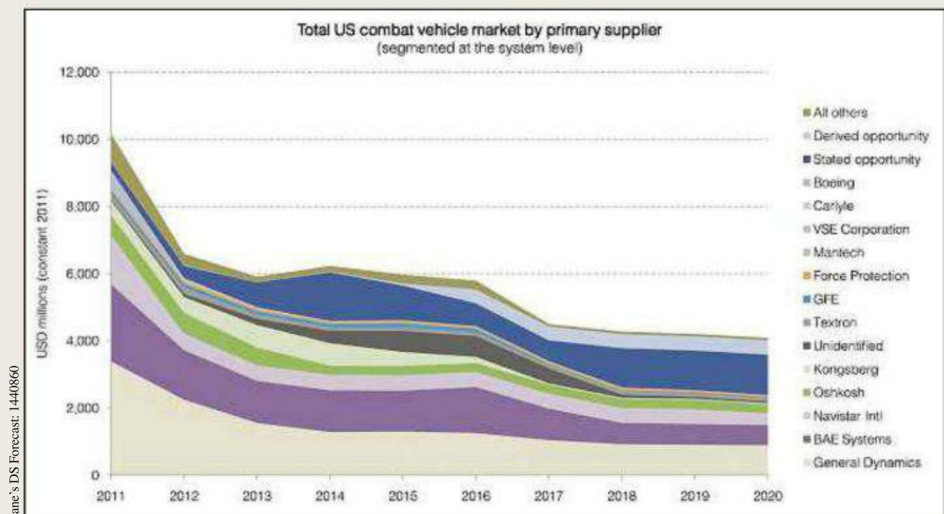
## Ground combat vehicles: a US market overview

In 2010 global spending on all military ground vehicles increased by 14 per cent. However, 2011 has seen cancellations, delays and cutbacks throughout the industry, resulting in a 7.7 per cent decrease in spending over the year. Looking further ahead, the compound annual growth rate (CAGR) through to 2020 is -3.1 per cent for the global combat vehicle market (which excludes logistics vehicles) with essentially all major platforms and programmes seeing cuts, cancellations and delays.

In the US, spending decreased by USD3.24 billion in 2011, which was predominantly driven by significant cancellations and cuts from the Pentagon owing to economic problems, the draw down of operations in Iraq and Afghanistan, an oversupply of vehicles purchased through urgent operational requests (UORs) and to maintain the high tempo of operations in recent years. Notable losses may include the proposed cancellation of the Joint Light Tactical Vehicle (JLTV) programme; the substantial planned cut of USD644 million (equating to nearly 75 per cent) in funding from the GCV programme; and the US Marine Corps' Expeditionary Fighting Vehicle (EFV), although the latter has seen the bulk of its funding essentially transferred to the USMC's Marine Personnel Carrier programme, Amphibious Combat Vehicle programme and AAV7 Service Life Extension Programme.

Despite the -3.1 per cent CAGR the outlook is comparatively positive, with a CAGR over the forecast period (between 2011-20) being only -0.1 per cent if the US is removed from the calculations. In fact, the market is set to increase in the short term until the middle of the decade, when it will begin to drop off again. Despite similarly stringent austerity measures playing out across Western nations, emerging markets in the Middle East and Asia continue to grow, with China and India standing out above other regions in terms of overall value, with a combined forecast market value of USD46.63 billion. In terms of greatest forecast CAGR, with some Western nations such as the UK pledging increased defence spending from 2015 onwards, the outlook for the wider global market may improve further.

This wider market has no single platform that will



receive the majority of spending, with the Piranha family of LAVs and the M1, Leopard, T-90 and T-72 MBTs all seeing broadly similar investment levels over the next 10 years.

Looking ahead, the US market will continue to decline, with *Jane's DS Forecast* indicating a CAGR of -9.6 per cent from 2011 to 2020. Much of this drop is due to high levels of production as a result of operational draw down. The time is also a factor, with programmes such as the Ground Combat Vehicle (GCV) only due to come into production towards the end of the decade. The GCV is itself now in question in light of the substantial planned cuts that have been announced recently. Conflicting reports of the unit price of the vehicle, which range from USD10 million through to USD17 million, have caused further concern for the programme's future, especially given the fact that it is supposed to be using mature technologies. How much research and development (R&D) can really be achieved in the current phase of the programme in the face of a potential 75 per cent budget cut is an issue and is likely to result in at least a year's delay, assuming full funding were to resume in the 2013 budgets. Compounding the issues for new production programmes is the enormous volume of MRAP vehicles procured over the past decade, reflected in the fact that the largest value programme over the next 10 years is the MRAP, worth USD11.74 bil-

lion. Resetting these vehicles and upgrading them with remote weapon stations will be an increasingly attractive proposition, especially as further expensive fleet replacement procurements begin to experience cost overruns and delays: something from which the JLTV programme has suffered.

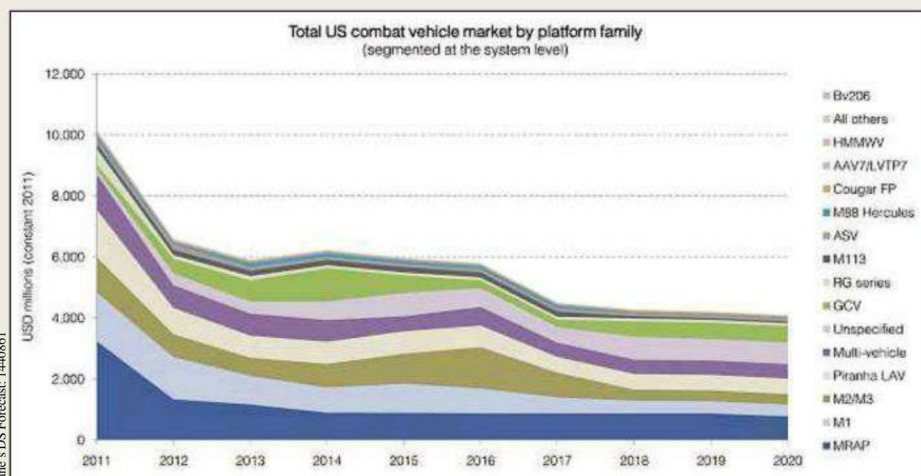
The draw down of current operations, and in particular the scheduled withdrawal from Afghanistan, will significantly reduce the need for new vehicle procurements and, rather than conduct upgrades and replacements for the future, the US government is likely to look at continuing austerity measures to overcome economic problems and defence budget cuts.

General Dynamics and BAE Systems appear to have the biggest share of the US combat vehicle market, with about USD26.4 billion in revenue forecast to be shared between them. As expected, General Dynamics has the Piranha/Stryker family of vehicles and the M1 as its biggest earners, both of which fare reasonably well over the period, with a CAGR of -11.1 per cent and -15.7 per cent respectively. BAE has just over 50 per cent of its forecast USD11.61 billion in earnings coming from its Bradley programmes, equating to around USD6.13 billion, through to 2020.

With the continuing risk of current programmes being axed or being scaled back, and legacy fleets continuing to age and require maintenance and upgrades, many companies are now moving to integrate a higher level of services into their revenue streams.

However there could be opportunities on the horizon within the US market. With the potential termination of the JLTV, the requirement for light tactical vehicles has fallen to the Humvee Modernised Expanded Capacity Vehicle (MECV) recap programme, which is now likely to undergo a re-evaluation to ensure it moves from a stop-gap to a full programme solution. Initially the programme looked to fulfil the low-capability end of the requirement, but with the proposed cancellation of the JLTV there will be a need for some of the Humvee fleet to fill this capability gap. This will doubtless cause delays, but with potentially 60,000 to 100,000 vehicles to upgrade, the programme could be worth more than USD10 billion.

Jon Hawkes is a *Jane's DS Forecast* Senior Analyst, based in London



rear, with appliqué armour for enhanced protection. An ERA system could be fitted to the appliqué armour for a higher level of protection against rocket-propelled grenades.

Furthermore, the existing M113 Mission Equipment Packages (MEPs) would be integrated into the GPV, CP and GCV.

If fielded, the A3 FoV reduces the number of different platforms in the Heavy Brigade Combat Teams (HBCTs) and it should be noted that the PIM upgrade currently being tested uses the same engine, transmission and powerpack as the Bradley IFV and CFV.

There are, however, a number of other potential options for the replacement programme including the procurement of additional Strykers, although at present the HBCT is track based.

## Armored Security Vehicle

The Textron Marine & Land Systems M1117 Armored Security Vehicle (ASV) was originally developed to meet the requirements of the US Army's military police and was only expected to be procured in small numbers. However, operations in Iraq showed that the M1117 was suitable for a much wider range of roles and more than 3,500 vehicles have now been delivered, with production running at 48 units a month.

Since the M1117 ASV first entered production a number of enhancements have been carried out including the installation of additional armour. The US Army's field artillery units use a modified version of the M1117 called the M1200 Armored Knight, with the first units fielded in late 2007.

The prime contractor for this vehicle is DRS Technologies, with Textron Marine & Land Systems supplying the baseline vehicle to the company. DRS integrates the sensor package, including a laser rangefinder and designator, thermal imager and blended inertial/global positioning system.

A number of export customers have also shown an interest in procuring M1117 ASVs, with some opting for more specialised versions.

These customers include Bulgaria, Colombia and Iraq and in mid-2011 a contract was awarded by the US Army Contracting Command to Textron Marine & Land Systems to produce up to 440 medium ASVs for the Afghan National Army (ANA).

In addition to the standard ASV, which is fitted with a one-person turret armed with a .50 cal machine gun and a 40 mm automatic grenade launcher, the ANA will field some more specialised versions. These include armoured personnel carrier, ambulance, command-and-control, engi-

neer, maintenance, mortar and reconnaissance variants, with some of these being in the long-wheelbase configuration with increased volume and payload.

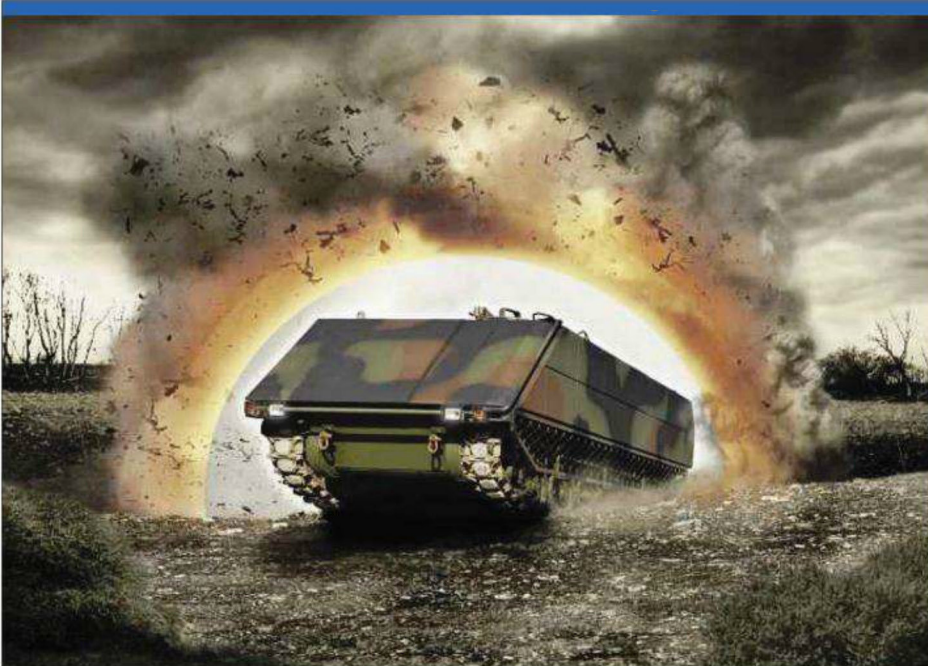
All of these platforms will be manufactured to the latest Enhanced Survivability Standard (ESV), which has upgraded suspension, improved seating and a higher level of protection against mines and IEDs.

## Filling the capability gap

For many years the M728 Combat Engineer Vehicle, based on a much modified M60A1 MBT chassis, was the standard vehicle of its type in the US Army. This should have been replaced by the Grizzly Combat Mobility Vehicle, but this programme was cancelled in 2000, leaving the US Army with a major capability gap that has yet to be filled.

Meanwhile, the USMC has started a programme called the Assault Breacher Vehicle (ABV), which is comprised of surplus US Army M1A1 MBTs with the turrets removed and replaced by a new superstructure with ERA for a higher level of protection.

A variety of Pearson Engineering equipment, including a full-width mine plough and a combat dozer blade, can be rapidly mounted on the front



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# BRIEFING

**M1117 Armored Security Vehicles** on the production line at Textron Marine & Land Systems' facility in New Orleans.

Textron: 1405356



of the chassis using the quick-release High Lift Adapter system.

A linear demolition charge system containing two launchers is mounted on the rear of the ABV.

The first production ABVs were delivered to the USMC in mid-2008 and 45 units have been supplied by Anniston Army Depot. The USMC has an initial requirement for 52 ABVs.

The platform has already been successfully

used by the USMC in Afghanistan to clear minefields and IEDs. The US Army has now joined the programme and the Anniston Army Depot handed over the first two vehicles for testing in May 2009.

Funding permitting, the US Army has an initial requirement for 171 units and these could be supplied by Anniston Army Depot. Again, they will be based on surplus M1A1 MBT chassis.

The US Army also currently deploys two armored vehicle launched bridge (AVLB) systems, one based on the GDLS M1 chassis and the other based on a M60 chassis.

The M1-based system is called the Wolverine Heavy Assault Bridge and was developed by GDLS together with Krauss-Maffei Wegmann of Germany. Forty three units were delivered before the programme was terminated.

The Wolverine launches a two-part Leguan bridge over the front of the chassis that is 26 m long and can typically span a gap of up to 24 m.

The older M60 has a scissor-type bridge that is launched over the front of the chassis and, when deployed, is 19.2 m long and can span a gap of up to 18.3 m.

In the longer term these could be replaced by the Joint Assault Bridge, which was originally developed to meet the requirements of the USMC, although the US Army has now joined the programme.

As with the ABV, this also uses a surplus M1A1 Abrams chassis and is fitted with a new bridge launch system that will be able to deploy the current M60 scissor bridge plus other bridges.

**Christopher F Foss** is the *Jane's Land Consultant, based in London, and Daniel Wasserbly* is the *JDW Senior Americas Reporter, based in Washington, DC*

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## BRIEFING

## AIRSHIPS

# Staying power

**S**ome 90 years since their first heyday of the early 1920s, airships are once again enjoying a renaissance as governments and militaries look to ramp up capabilities while driving down costs.

The need to offset increasing fuel prices, coupled with a requirement to reduce operating and sustainment costs, means that airships (or lighter-than-air (LTA) vehicles, as they are more commonly known in military circles) are being touted as a means of substantially increasing capability at a fraction of the cost of operating many of today's fixed- and rotary-wing aircraft.

According to Alan Metzger, vice president and integrated product team leader for the Long Endurance Multi-Intelligence Vehicle (LEMV) and airship programmes at Northrop Grumman, LTA technology offers a number of key benefits in terms of endurance, payload, range, survivability, flexibility and operating and support costs.

"We think that LTA [vehicles] have a bright future in terms of fulfilling a wide variety of roles and missions," he said. "[In particular], from an ISR [intelligence, surveillance and reconnaissance] and a heavy-lift perspective we think there's a great future for LTA."

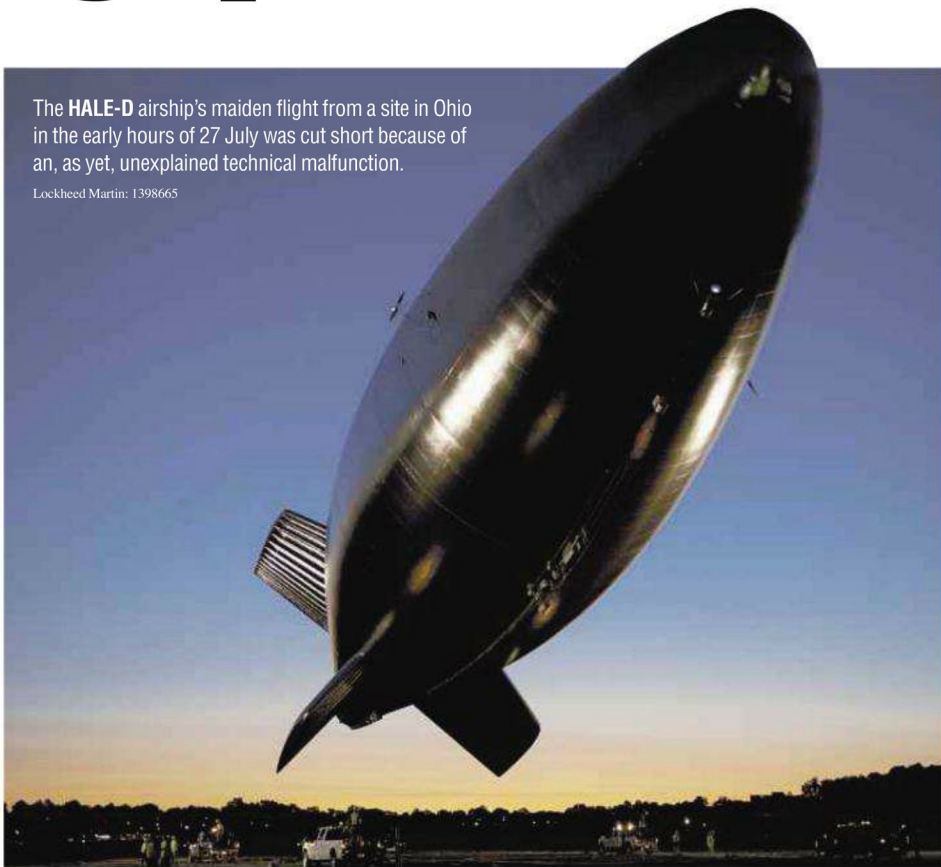
With LTA technology largely developed and proven, industry has been looking at which applications best suit the platform. The airship's greatest attributes of long endurance, high operating altitudes and the ability to carry heavy and outsized cargo have pointed the way to ISR and airlift as being the roles for which such vehicles might be best suited.

For the ISR role, the LTA vehicle's endurance sets it apart from conventional fixed- and rotary-wing platforms. The 30-plus-hour endurance of the most capable unmanned aerial vehicles (UAVs) pales when set against the three-week capability of the LEMV; it would take 25 fixed-wing aircraft flying in shifts to provide the same level of ISR coverage as an LTA vehicle, said Metzger.

He added that the key benefit of this increased capability does not come at an additional cost to the operator. As well as a reduction in fuel costs (the LEMV consumes only 4.5 US gallons an hour – less than many 'ride-on' lawnmowers, Metzger noted), fewer people are required to launch and recover the vehicle.

The HALE-D airship's maiden flight from a site in Ohio in the early hours of 27 July was cut short because of an, as yet, unexplained technical malfunction.

Lockheed Martin: 1398665



## Airships are making a comeback thanks to their endurance and cargo lift capabilities. Gareth Jennings reports

LTA vehicles can operate in austere conditions and from unprepared surfaces and do not require expensive ground infrastructure to be in place. This, coupled with the fact that support equipment can be designed to fit into shipping containers or fixed-wing airlifters, means that the LTA operator "begins to quantify some significant life-cycle savings", Metzger said.

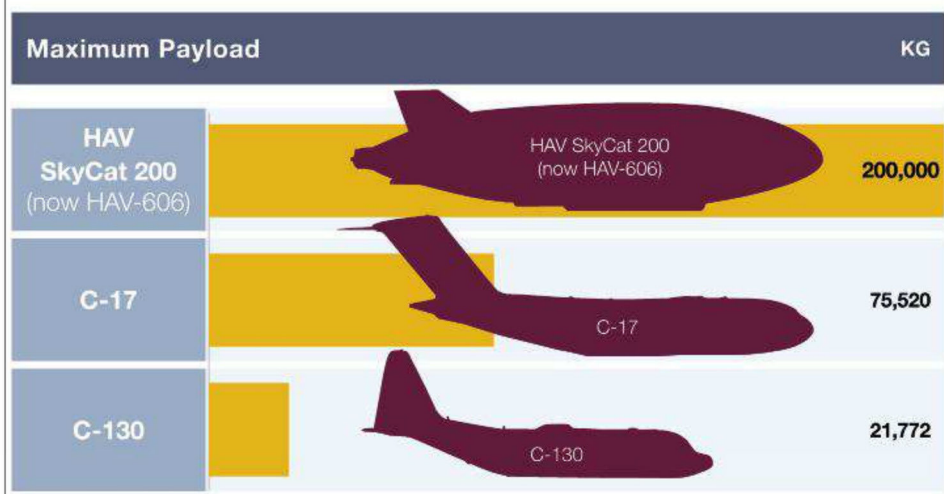
LTA vehicles also offer maintenance cost savings. Apart from the podded engines, which can be easily interchanged, the vehicles have few

moving parts, meaning that in-depth maintenance does not need to occur at the same rates that are required with more conventional platforms.

Besides increased endurance and reduced costs, a 90 m-long airship (as in the case of the LEMV) provides the ISR operator with a large surface area from which to hang sensors and cameras. For the heavy-lift user, the vehicle's size allows for underslung cargo modules that can haul personnel and materiel far in excess of even the largest fixed-wing airlifters in service

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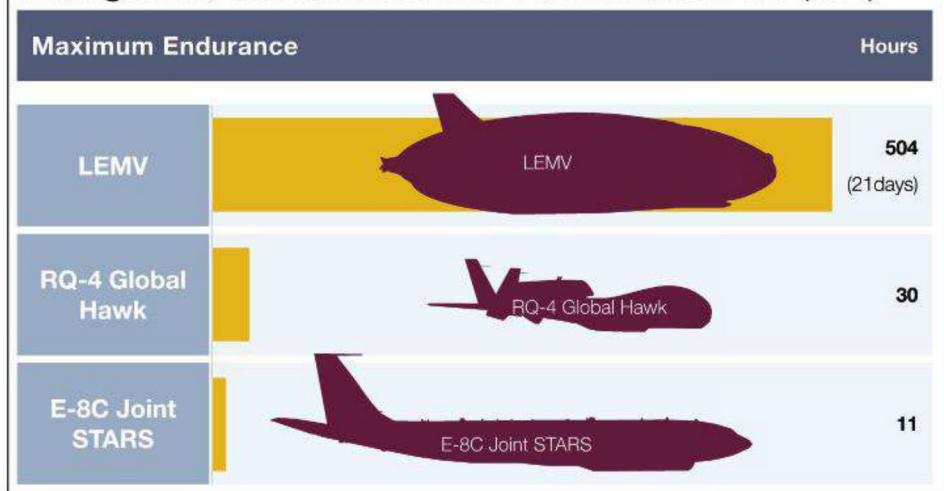
## Airlift



How the payload of the **HAV SkyCat 200** compares with two of the most widely used fixed-wing transport aircraft currently in service.

IHS Jane's: 1402479

## Intelligence, Surveillance and Reconnaissance (ISR)



How the maximum endurance of the **LEMV** compares with manned and unmanned fixed-wing ISR assets.

IHS Jane's: 1402480

today. Whereas the Lockheed Martin C-5 Galaxy – the largest aircraft in the US Air Force's inventory – has a payload of about 118 tonnes, LTA concepts are being developed that will carry up to 1,000 tonnes of cargo.

A number of platforms for use in the long-endurance ISR role are either in development or have already entered service.

Of these, the US Army's LEMV programme is probably the most high profile. The USD517 million LEMV contract is focused on providing an 'unblinking eye' surveillance capability to commanders on the ground in Afghanistan.

Awarded a development contract in mid-2010, Northrop Grumman has teamed with UK airship company Hybrid Air Vehicles (HAV) to adapt its 15 m (50 ft)-long HAV3 prototype air

vehicle into a 90 m (300 ft)-long hybrid airship sensor platform.

The hybrid technology being used in the LEMV programme differs from standard airships in that about 40 per cent of the vehicle's lift is provided by its pressure-stabilised fabric hull. Additional lift is provided by vectoring the thrust of the four engines.

Designed to carry up to 1,134 kg of ISR payloads for 21 days at a time, the LEMV will be either manned, autonomous or operated via a ground control station (GCS).

The LEMV contract calls for the development of one vehicle, with the option for two more to be built at a later date. The first vehicle (HAV 304) is expected to be delivered to the army in December before being flown by an onboard pilot to the

Middle East. From there it will be flown over Afghanistan from a ground control station or operated autonomously.

The US Department of Defense (DoD) views the LEMV programme as part of a wider effort to develop airship technology for military applications. Other programmes include the Defense Advanced Research Projects Agency's (DARPA's) Integrated Sensor is Structure (ISIS) programme. ISIS will build an unmanned stratospheric airship with years of persistence to monitor air and ground targets out to 600 km and ground forces out to 300 km.

Meanwhile, Lockheed Martin was awarded a USD100 million contract in 2006 to lead the construction of a one-third-scale technology demonstration airship. The full-scale operational airship is expected to operate at an altitude of between 65,000 ft and 70,000 ft.

With more than 30 per cent of the ISIS' mass being taken up by its ISR payload (compared with no more than 3 per cent for a conventional aerostat), much of the development work to date has gone into examining new lightweight sensor technologies to incorporate onto the system. This effort has been largely led by Raytheon Space and Airborne Systems, which is responsible for developing the aircraft's mission systems.

Designed to be launched from within the continental US, ISIS will be capable of global deployment within 10 days and will have a 10-year service life. A demonstrator flight test of the scale model is slated for late 2013. As yet, an operational in-service date of a full-scale airship has not been announced.

Another ISR airship offering from Lockheed Martin is the High-Altitude Long-Endurance Demonstrator (HALE-D). Designed under a programme to develop a communications relay platform for troops operating in Afghanistan, HALE-D is a sub-scale prototype of the US Army Space and Missile Defense Command/Army Forces Strategic Command's High Altitude Airship (HAA).

At nearly 250 ft (76 m) long, the unmanned HALE-D was set to demonstrate its ability to operate at heights above 60,000 ft during its maiden flight from Akron, Ohio, in late July. However, an as-yet-unexplained technical malfunction caused the test team to abort the flight at about 30,000 ft, bringing the airship down safely into a wooded area in Pennsylvania. No in-service date for the HAA has yet been announced.

Running concurrently with its efforts to develop long-endurance ISR and communications relay airships, the DoD is also examining options and technologies for fielding heavy-lift LTA platforms.

Several companies, such as Lockheed Martin, HAV/Northrop Grumman and SAIC, are developing concepts that they hope will satisfy US military requirements such as the Joint Future Theater Lift (JFTL) programme.

As is the case with ISIS, Lockheed Martin's heavy-lift solution is based on its P791 prototype hybrid airship (this design was not unique

and prompted a lengthy, but now settled, hybrid concept). At 180 m in length, the P791 is being developed in 20-, 50- and 500-tonne (payload) versions. Lockheed Martin sees such a platform as being able to offer a “‘port to fight’ capability”, whereby an army brigade can embark at its home base in the US and be offloaded in theatre.

Although Northrop Grumman’s primary LTA focus is currently the LEMV programme, the company is also considering utilising the HAV-designed airship for the heavy-lift market. According to Metzger, converting the airship from one role to the other would not be a major undertaking. “Something in the order of 80 to 85 per cent of the ISR vehicle would be common to [the] airlift configuration,” he said. “[All you have to do is] change the landing gear, remove fuel for cargo containers and then you start to think about transitioning 20 tonnes of stuff over nearly 1,000 miles at a very economical price.”

Originally dubbed SkyCat20/50/200, HAV has redesignated its airship series HAV-266/366/606. With Northrop Grumman, the UK-based company is looking offer its vehicles as a possible solution for the heavy-lift market.

The 20-tonne HAV-266 (the smallest of the series) would be configured with a centreline gondola for the stowage of light- to medium-sized cargo. The 50-ton HAV-366 would be fitted with

a payload module capable of transporting larger armoured vehicles, while the 200-tonne HAV-606 would feature a centreline cargo/troop module providing a roll-on/roll-off freight capability. The company also envisages a 1,000-tonne variant, although the technologies needed to make this happen have not yet been fully developed.

Having first entered into LTA development nearly a decade ago, SAIC has opted to pursue conventional elliptical airship design as opposed to the hybrid design favoured by Lockheed Martin and Northrop Grumman/HAV.

Ron Hochstetler, who is the senior systems engineer for SAIC’s Advanced Concepts business, told *Jane’s* earlier this year that the company is promoting its SKYBUS 1500HL (Heavy Lift) airship as a future outsized cargo lifter. Designed to lift about 20 tonnes, the SKYBUS 1500HL can carry either 20 ft or 40 ft shipping containers underslung from its 125 m-long envelope. According to Hochstetler, such a configuration allows the vehicle to carry cargo “of unlimited dimensions”.

However, despite the manifest benefits of airships, there are concerns about the safety of operating these vehicles, especially in a military environment where they are seen as being especially vulnerable to ground fire.

According to Metzger and HAV spokesper-

son Gordon Taylor, the perception of airships as giant ‘sitting ducks’ ready to burst into flames with just a single shot is about as far removed from the reality of today’s LTA vehicles as it is possible to get.

“This is not your airship of yesterday,” Metzger said. “It’s built out of modern materials [and is] very survivable. The fabric has very high tensile strength with a minimum pressure differential [one-tenth of 1 lb per square inch] from the inside to the outside. If the vehicle were to take any small arms fire, or things of that nature, we don’t believe there will be any issues with regard to staying aloft [as there] will be a graceful degradation over time.”

Although he was referring to the LEMV vehicle in particular, Metzger’s comments can be applied to LTA vehicles in general, as all airships today are filled with inert gases, such as helium. Taylor supports this view, telling *Jane’s* about a series of live-fire demonstrations that the US and UK militaries conducted to test the survivability of airships.

During these trials rounds of increasing calibre were fired into an inflated trials vehicle to test its vulnerability. While the rounds did penetrate and exit the airship, the effect on its performance would have been surprisingly negligible, he said.

These trials culminated in the detonation of

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# BRIEFING



The P791 hybrid airship is seen by Lockheed Martin as an efficient means of transporting large quantities of men and materiel directly to where they need to be.

Lockheed Martin: 1404422

a surface-to-air missile (SAM) warhead within the fully inflated test hull. According to Taylor, besides a few shrapnel holes the hull absorbed most of the missile's explosive force and, as there is no internal structure to the envelope (it is fully supported by the pressure of the gas), the vehicle would have survived such a SAM attack long enough to land safely.

Another commonly held belief is that airships cannot operate in any but the most benign weather conditions. Again, Metzger says this is not true. "The vehicle will operate in all weather conditions, but if I am in an environment where I

have 120 kt winds then we're going to have some issues," he said. This would also be true of fixed- and rotary-wing platforms.

However, LTAs cannot operate in snow. Sources involved in LTA development told *Jane's* that it would only take a light dusting of snow on the airship's hull to inhibit operations. This is something the industry is looking to address, particularly with a mind to operating such vehicles in the far north.

With so many air arms looking to develop their ISR and/or airlift capabilities while at the same time trying to battle ever-rising operating

and support costs, the future for the development and fielding of LTA technologies has never looked so bright.

In addition, designers are realising that the flexibility and utility afforded by LTA vehicles is such that they need not be restricted to ISR and airlift alone. "Just about wherever your imagination will take you, you [can] put an LTA capability together," said Metzger, "[for example] border surveillance (as opposed to fixed aerostats), counter-IED [improvised explosive device] missions (allowing troops to transition over dangerous areas with a VTOL [vertical take-off and landing] capability), humanitarian relief (no need for a working infrastructure to be in place), [as well as] fleet protection and maritime surveillance."

While it had seemed that the airship's glory years were very much in the past, it now appears that a new golden age for LTA vehicles might just be dawning.

**Gareth Jennings** is the *Jane's Aviation Desk Editor*, based in London



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# INTERVIEW

SHMAYA AVIELI

HEAD OF THE ISRAELI MOD'S DEFENCE EXPORT AND DEFENCE CO-OPERATION AGENCY (SIBAT)

**T**he Israeli Ministry of Defence (MoD) is looking for new emerging markets and overseas joint ventures (JVs) in an effort to offset potential losses caused by the global economic downturn, defence budget cuts and planned troop withdrawals from Iraq and Afghanistan, according to the head of the Israeli MoD's Defence Export and Defence Co-operation Agency (SIBAT), Shmaya Avieli.

Meanwhile, Avieli is also focusing SIBAT's efforts on helping small and medium-sized companies to penetrate the larger defence market. This is being achieved by establishing an Israeli pavilion, for the first time and after years of rejected requests, at the Association of the US Army (AUSA) exhibition in Washington, DC, in October.

"In the past three years Israel has seen export sales measured at around USD7 billion and we are doing everything possible to reach that same number by the end of 2011 as well," Avieli said. In comparison, in 2000 Israeli defence exports were just USD2.5 billion.

Several factors are turning this goal into a challenge: "Firstly, there is the planned withdrawal of coalition forces from Iraq and then the planned US withdrawal from Afghanistan in 2014," said Avieli. "Also, overall cuts around the world to countries' defence budgets [are having an impact]. They have decreased almost every year and are expected to be cut even further in 2012.

"We recognise the challenges but are working hard to maintain the level we are currently at and even to increase it," he said.

Avieli attributed Israel's ranking as one of the world's top four defence exporters to the country's innovative technology and advanced development capabilities in a number of fields, including unmanned aerial vehicle (UAV) platforms, command-and-control systems, missile defence and armoured vehicle upgrades.

A recent export sale was France's purchase of Israel Aerospace Industries' (IAI's) Heron TP high-altitude long-endurance (HALE) UAV: a deal estimated to eventually generate about USD400 million for the company.

"Israeli companies develop and manufacture some of the most advanced technology in the world and ... the systems are mostly combat proven on the battlefield by the IDF [Israel Defence Force]," he said.

Avieli added that there are ongoing talks with several countries about the possible sale of Rafael's Iron Dome counter-rocket defence system, which has successfully intercepted rockets fired into Israel from the Gaza Strip, as well as the Trophy active protection system, installed on the IDF's Merkava Mk 4 main battle tanks.

"These two technologies are the first of their kind. One is capable of



Israel MoD/Ariel Hermoni: 1440854

**'We believe that whatever happens will not have a significant impact on exports'**

intercepting short-range Katyusha rockets and the other anti-tank guided weapons [ATGWs] and there is growing interest for them around the world," he said.

According to Avieli, the global economic downturn requires Israeli defence industries to locate and forge joint ventures (JVs) in a significant number of countries in which they wish to operate. Part of SIBAT's efforts to seek out new markets stems from the loss of key customer Turkey after Ankara cut diplomatic and military ties with Israel.

SIBAT decided in August to open new offices in Mexico and Canada. Avieli also rejected criticism by some Israeli companies that Israeli export regulations were too strict and that it was difficult to obtain licences for JVs.

"SIBAT works very hard to assist and facilitate JVs for Israeli companies around the world in a way that will be beneficial for Israel and the other side," he said. "JVs are the current trend around the world, since it is difficult for a country to set aside money to fund a development project from scratch and it is sometimes better to see what is out there already on-the-shelf and then work together to create it."

Industry leaders in Israel have recently raised concerns that any Palestinian declaration of independence at the United Nations will increase Israel's diplomatic isolation. However, Avieli remains unconcerned that this could result

in an international boycott of the country's defence products.

"I think it is irrelevant and that ultimately, for customers, it comes down to a question of quality," he said. "We believe that whatever happens will not have a significant impact on defence exports."

Nevertheless, Avieli has been working with Israeli defence companies to break into new markets in South America, Europe and Southeast Asia. Avieli said that sales to South Korea were expected to increase over the coming years, as demonstrated by *Jane's* reporting that Seoul has decided to purchase Rafael Spike Non-Line-Of-Sight (NLOS) ATGWs in September.

"South Korea is an extremely important country and there are strong similarities between the threats that it is facing and those that Israel faces in the Middle East," Avieli said.


As head of SIBAT, Avieli oversaw the first JV between an Israeli and Russian company when IAI sold Oboronprom UAV assembly elements and services in 2010 in a USD400 million deal. At the time, there were press reports that Israel first approved the deal with the US government. Avieli would not comment on the reports but said that Israel always took its allies' interests, as well as its own, into consideration.

"Israeli export policy is set according to our interests and the interests of our friends around the world," he said.

**Yaakov Katz** JDW Correspondent, Tel Aviv

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