Build: Babcock making great progress with manufacture of huge bow section Page 3

Contracts: some of the UK's top companies on board to deliver QE Class Pages 8 and 9

News from the Aircraft Carrier Alliance
Issue 3
January 2010

carrier waves

Programme makes successful move from design into full-scale production

PROGRAMME UPDATE

'Outstanding progress' as momentum builds

Welcome to the third edition of the Aircraft Carrier Alliance's *Carrier Waves* – inside, you will find all the latest news on the progress of the Queen Elizabeth Class Aircraft Carriers, which are being delivered by UK industry for the UK armed forces.

During 2009, the Aircraft Carrier Alliance, along with our Power and Propulsion Sub-Alliance partners and all of our suppliers and contractors, have been working tirelessly to achieve great momentum on this vital programme to build the largest-ever ships to enter service with the Royal Navy. While we have faced several challenges over the last 12 months, we have collectively strived for success and I am delighted to announce that we have hit all of our major milestones, allowing the programme to move from the design phase into full-scale production.

We have had many notable achievements, including the ceremonial cutting of the first steel for HMS Queen Elizabeth on the Clyde, which marked the start of the full-scale manufacturing phase. Since then, the workforce at the BAE Systems shipyard in Govan have been driving the programme forward and, by the end of 2009, had 40 units in various stages of production, which collectively made up 2,280 tonnes of the 9,500 tonne mid section of the first ship. This is nothing short of outstanding progress.

Moving across Scotland to the east coast, work on the Number One dock has been completed by the team at Babcock and final preparations are being made for the delivery of the enormous Goliath crane which is set to arrive in Rosyth in October this year. Babcock has also

continued on page 02 ►

MISSION STATEMENT

Proudly delivering the nation's flagships through a high-performing alliance between industry and the MoD

Contents
[JANUARY 2010]

Contact
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To request further copies or to submit a story for the next edition, please contact Cat Thurogood, ACA Communications Manager at catherine.thurogood@baesystems.com

Carrier Waves is now being made available online as an interactive PDF. The link to access the latest version will be distributed to you via email. If you would like more information on the new format, or would like to request *Carrier Waves* as a standard PDF, please contact Cat Thurogood, ACA Communications Manager at catherine.thurogood@baesystems.com

Rolls-Royce hits first of many key milestones

DELIVERY OF STABILISER FINS

Rolls-Royce delivered the first part of its £96 million contract to supply a range of equipment to the QE Class programme in the last quarter of 2009.

The first pair of Neptune stabiliser fins were transported to the BAE Systems Surface Ships facility in Govan where they will be incorporated into the hull section currently under construction.

Richard Dingley, Rolls-Royce Director Programmes – Europe and International, said: "This delivery is a key milestone in the QE Class programme and marks not only the first delivery of Rolls-Royce equipment, but also the first part of the power and propulsion element.

"We are proud to be involved in the development of these vessels, working alongside our many partners in the Aircraft Carrier Alliance, to supply mission-critical technology and systems."

The stabilising fins are retractable and can be deployed from their housing in the ship's hull to stabilise the vessel when sailing through rough seas to ensure the safety of aircraft operations and the comfort and efficiency of the crew.

Rolls-Royce is also supplying the MT30 gas turbine, the most powerful available in the marine market today, as part of an integrated system which includes the giant carriers' propellers and propeller shafts as well as rudders, bearings and some electrical systems. The company is part of a 'sub-alliance' team that has overall responsibility for delivery of the entire power and propulsion system.

"We are proud to be involved in the development of these vessels, working alongside our many partners in the Aircraft Carrier Alliance"
Richard Dingley, Rolls-Royce

'Outstanding progress' as momentum builds

◀Continued from page 01

been forging ahead at the other end of the country in Appledore, Devon with work on the sponson units well under way.

However, more impressive still is the development of the bulbous bow for HMS Queen Elizabeth, which could almost be mistaken for a submarine due to its sheer size!

On Tyneside, A&P Tyne signed its contract and started the manufacture process, with the first units set to be shipped to Portsmouth to be incorporated into one of the super blocks in mid-February 2010.

Away from the manufacturing side of the programme, we have been working hard to identify and deliver improvements to the build strategy, methods and schedule which will lead to cost efficiencies, savings and to de-risk the integration of command, air-traffic control and communication systems.

The Aircraft Carrier Alliance has also been placing contracts for work with suppliers and contractors the length and breadth of the country, with almost every region of the UK having at least one major supplier based there, proving that this is a truly national programme. By the end of 2009, we had placed more than £1 billion-worth of contracts, providing a vital boost to manufacturing businesses throughout the UK

Looking ahead, I expect 2010 to be equally as successful, with work starting at Cammell Laird, bringing shipbuilding back to Merseyside, and the first steel for another of the super blocks being cut in the coming weeks in Portsmouth. Deliveries of further parts of the structure to arrive in Rosyth will continue and deliveries of equipment to the shipyards around the UK will gather pace as the main blocks take shape.

I hope that you enjoy reading about the extensive progress we have been making and I would like to wish you a very Happy New Year from everyone at the Aircraft Carrier Alliance.

Geoff Searle,
QE Class Programme Director

ABOVE: Head of Capital Ships, Tony Graham in front of the bulbous bow

Babcock building up a head of steam

Manufacture of huge bow at Appledore yard in Devon is a key step in construction of lower block 1

Strong progress is being made by Babcock in the manufacture of one of the key elements of the new aircraft carriers.

The huge bulbous bow is similar in size and appearance to a conventional submarine, and measures a substantial 27 metres long and 9.5 metres high, weighing some 315 tonnes – the equivalent weight of more than 33 double-decker buses.

As part of the build programme in Appledore, Babcock is focusing heavily on health and safety. It has already managed to successfully reduce the rate of on-site incidents by almost 300 per cent due, in part, to further awareness raising programmes for new and existing members of staff.

The bulbous bow is a protruding 'bulb' at the bow of the ship just below the waterline. By altering the bow wave generation and water flow around the hull, it will reduce drag, increasing the carrier's speed and fuel efficiency.

In a visit to Babcock's Appledore shipyard in Devon recently the MoD's Director Ships, Rear Admiral Bob Love, witnessed the progress being made on the substantial bow module, forming part of the first lower block. The bulbous bow, which is being manufactured by joining massive steel plates to produce the complex curvature required, will be completed and shipped with the other lower block 1 components to Babcock's Rosyth facility, where the carrier sections will be combined and assembled in Number One Dock.

Following his visit, Rear Admiral Love said: "I was delighted to see lower block 1 coming together at Appledore. This work is proof that the project is progressing well, milestones are being met and momentum is growing. The next year will see the carrier programme make a significant step forward as this block, the first of the four large lower blocks to be constructed for HMS Queen Elizabeth, is delivered to Rosyth."

The bulbous bow will be one of the first major units to arrive in Rosyth when it is delivered from the Appledore facility in March 2010, marking yet another milestone in the delivery of this project.

Babcock's Marine Division Warships Managing Director Mike Pettigrew said: "It is only when you witness the structure first hand that you can get an idea of the sheer scale of this vessel. In terms of schedule and cost, the progress at Appledore has more than fulfilled everyone's expectations and shows just how far advanced this project is."

News in brief

First steel set to be cut in Portsmouth

BAE Systems Surface Ships' Portsmouth facility is set to cut the first steel on their section of the first aircraft carrier, the Queen Elizabeth in the coming weeks.

Work began at the Surface Ships Govan yard in July 2009, when HRH The Princess Royal ceremonially cut the first steel for the hull of the first ship.

Pride of the Clyde

BAE Systems' apprentices recently showed off their handiwork on the QE Class programme by spelling out Clyde while standing on top of 11 of the double bottom units for lower block 03, which are currently in production in the Ship Block and Outfit Hall at Govan.

So far, 44 of the 144 structural units for lower block 03 are in various stages of production.

Work progressing at A&P Tyne

A&P Tyne is on track to make the first delivery of units to BAE Systems in Portsmouth in February this year.

The completion of these units marks a major milestone achievement in the project for the Tyneside company, which is currently contracted to build sections for both aircraft carriers.

AEI wins cabling contract

AEI Cables, based in Tyneside, has been awarded a contract worth £8 million and will supply all of the cabling for the QE Class.

AEI Chief Executive Jim Duffy was delighted with the contract award, saying: "This is great news for AEI and we are delighted that we can continue our strong relationship with BAE Systems while working on such a prestigious project."

ABOVE: Cammell Laird contract signing, back row (l-r): Jon Pearson, Eddie Purves, Linton Roberts, Geoff Searle, Paul Bova and Cliff Crummey. Front row (l-r): John Syvret and Andy Morrish

Contract heralds the return of shipbuilding to the Mersey

CONTRACT AWARD

Birkenhead-based company Cammell Laird on board to build large sections of the flight deck for HMS Queen Elizabeth

Shipbuilding has returned to the River Mersey thanks to a contract for work on the first aircraft carrier, HMS Queen Elizabeth, which will see local firm Cammell Laird building large sections of the flight deck.

The company, which already has strong links to naval shipbuilding and even built the last HMS Prince of Wales, has been awarded more than £44 million worth of work, which will help to support a 1,500-strong workforce, including contractors and 59 apprentices.

"We are all absolutely thrilled to be part of such a momentous project and this is a great opportunity to represent Merseyside"
John Syvret, Cammell Laird

Announcing the contract win in January was a great start to the New Year, said Cammell Laird's Chief Executive Officer, John Syvret. "This contract award has come at an excellent time as it has really given the workforce at our Birkenhead facility a boost at the start of the New Year. We are all absolutely thrilled to be part of such a momentous project and this is a great opportunity to represent Merseyside, which has such a great naval heritage.

"Cammell Laird is currently heavily involved in supporting the Royal Navy's fleet of Royal Fleet Auxiliary vessels, but to add this contract for work on the HMS Queen Elizabeth to that is both a welcome return to shipbuilding on the River Mersey and indeed a great honour."

On completion, the sections being constructed by the Cammell Laird workforce will be shipped to Rosyth by ocean-going barge, where they will be stored in preparation for attaching to a larger block which will make up one of the centre sections near the front of the ship.

The signing of the contract with Cammell Laird marks the completion of a further milestone on the QE Class programme, with all major ship build contracts now placed. Aircraft Carrier Alliance Ship Build Director David Goodfellow said: "This is a great step forward both for the programme and an exciting period for the industry in Liverpool.

"It is a great achievement to now have all of the major ship build contracts for HMS Queen Elizabeth signed. Bringing Cammell Laird on board has given us the opportunity to work with a highly experienced company and also put the Liverpool area on the Carrier map.

"The Aircraft Carrier Alliance has contracts with companies in almost every region of the UK – this is a truly national project, supporting local jobs and communities up and down the country."

Build programme provides opportunity for apprentices

Next generation of engineers is helping with the manufacture of power and propulsion equipment

ABOVE: MT30 gas turbine engines

POWER AND PROPULSION

Throughout 2009, one of the main focuses across the programme has been manufacturing, and the Power and Propulsion (P&P) Sub Alliance has also been making extensive progress in this area, with the majority of P&P equipment for HMS Queen Elizabeth now in manufacture.

Hundreds of workers in many sites across the UK are now engaged in building everything from small control panels to such large items as switchboards, propulsion motors and gas turbines.

One of the benefits of this monumental programme is the opportunities it is providing for many young people, both trade apprentices and graduates, to develop their skills and provide them with an excellent start to their careers.

Therefore, the opportunity was taken to ask apprentices and graduates to give their views on what working on the QE Class programme really means.

Ashley Mark, an apprentice with Rolls-Royce in Portsmouth, said: "I'm proud to be working on the low voltage equipment for the QE class aircraft carriers, knowing how important this project is to both Rolls-Royce and the Royal Navy. When I see the carriers on the news in the future, I'll be proud to know I played my part in their construction."

Oliver Rath, a graduate engineer working on the MT30 gas turbine for Rolls-Royce in Filton near Bristol, said: "Working on the QE class programme has provided an invaluable insight into what it takes to deliver a major engineering project.

"The unique nature of working as an alliance of companies also provides many opportunities to develop an insight into the products and working practices of the partnering companies and participating shipyards. This allows young engineers to quickly develop a deep understanding of the UK shipbuilding industry."

Ian Hildebrand, another graduate working on the MT30 gas turbine for Rolls-Royce, said: "Working on the MT30 as part of the team in Filton was an excellent development opportunity, both in terms of engineering challenge and for exposure to customers and partners.

"The level of responsibility I was given really increased my confidence. Seeing how such a large engineering project comes together was really exciting and I will take great pride in knowing I have contributed when the first vessel is launched."

Andy Clowes, a BAE Systems graduate working in the Thales led P&P team in Bristol, said: "I'm grateful for the opportunity to spend six months working as part of the power and propulsion team. I feel that this placement will provide me with the valuable experience of working effectively within a large team.

"I get to work with a number of skilled people from whom I can not only gather technical knowledge, but also learn about working on such large and complex projects as the QE Class. In addition, the scale of the project means that I get lots of varied tasks to complete which will help to increase my skills."

As well as the manufacturing, the Power and Propulsion Sub Alliance has been busy with physical and functional integration, interfaces and safety work. P&P Sub Alliance Director Jim Bennett said: "The Power & Propulsion Sub Alliance, now in its second year, continues to work well in meeting its targets and delivering savings. Through the excellent partnership between the four companies, and with the Aircraft Carrier Alliance, it is significantly de-risking the project.

"The apprentices working on the programme are the lifeblood of UK industry and it is exciting to see so many of them showing such a great commitment towards the aircraft carriers as they train to become the engineers and skilled trades people of the future – this is a truly excellent way to start their careers!"

"The Power and Propulsion Sub Alliance continues to work well in meeting its targets and delivering savings. Through the excellent partnership between the four companies, and with the Aircraft Carrier Alliance, it is significantly de-risking the project"

Jim Bennett, Power and Propulsion Sub Alliance Director

Turn to pages 06 and 07 for more on power and propulsion

Powering up the Queen Eli

Carrier Waves takes a closer look at the integrated electric propulsion system

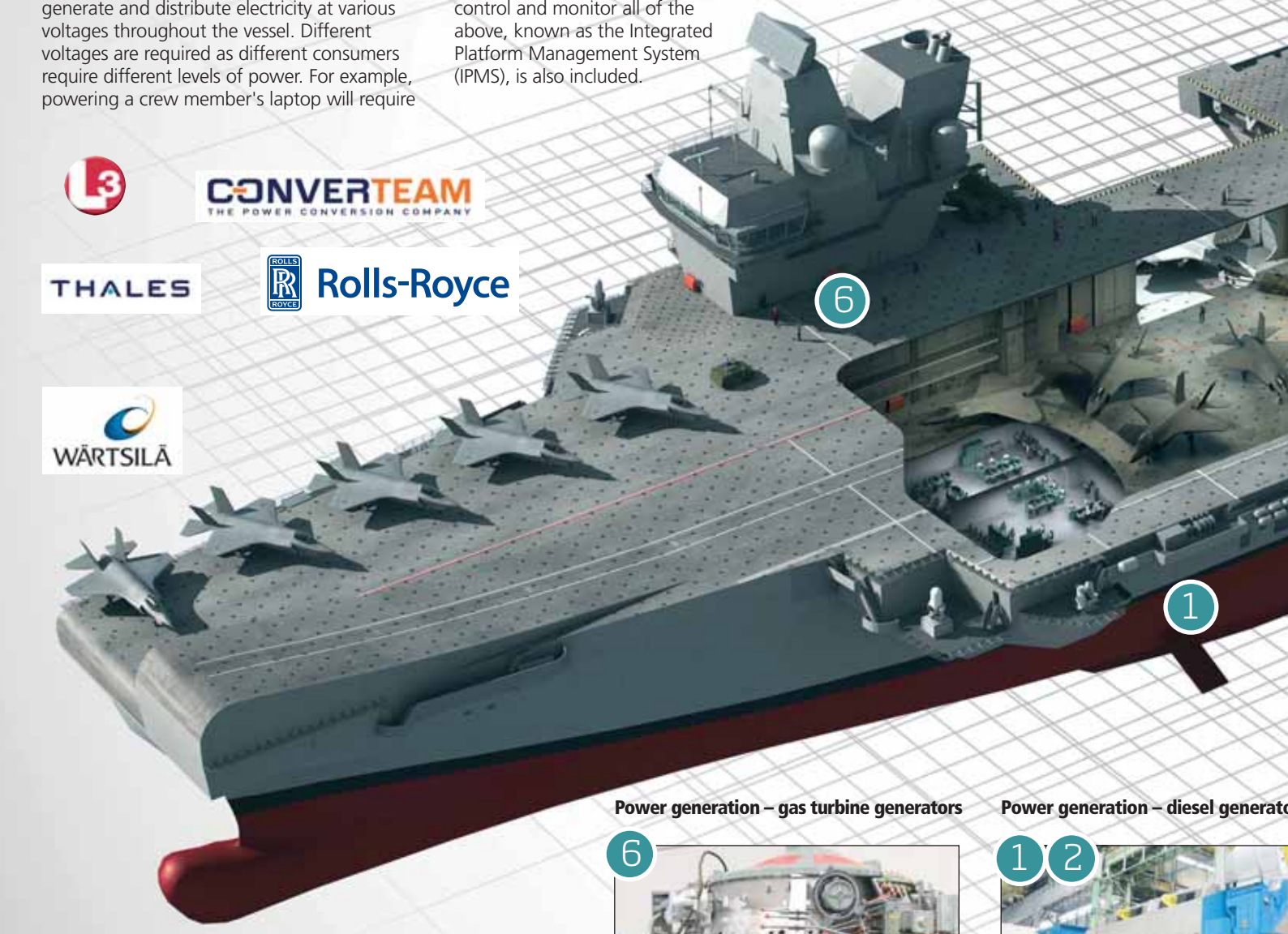
The Power and Propulsion Sub Alliance comprises of Thales UK (acting on behalf of the main Aircraft Carrier Alliance), Rolls-Royce, Converteam and L3, and is responsible for the design, procurement, manufacture, integration, test and delivery of the integrated electric propulsion system.

Power and Propulsion – what does it comprise?
Power – this is everything that is required to generate and distribute electricity at various voltages throughout the vessel. Different voltages are required as different consumers require different levels of power. For example, powering a crew member's laptop will require a lower voltage than would be needed to power the propulsion motors.

Propulsion – this refers mainly to the electric propulsion system, shaft lines and propellers that drive the vessel through the water, but in this case also includes both steering and stabiliser systems.

The automation necessary to control and monitor all of the above, known as the Integrated Platform Management System (IPMS), is also included.

L3 CONVERTEAM THE POWER CONVERSION COMPANY THALES Rolls-Royce WÄRTSILÄ



Power generation – gas turbine generators

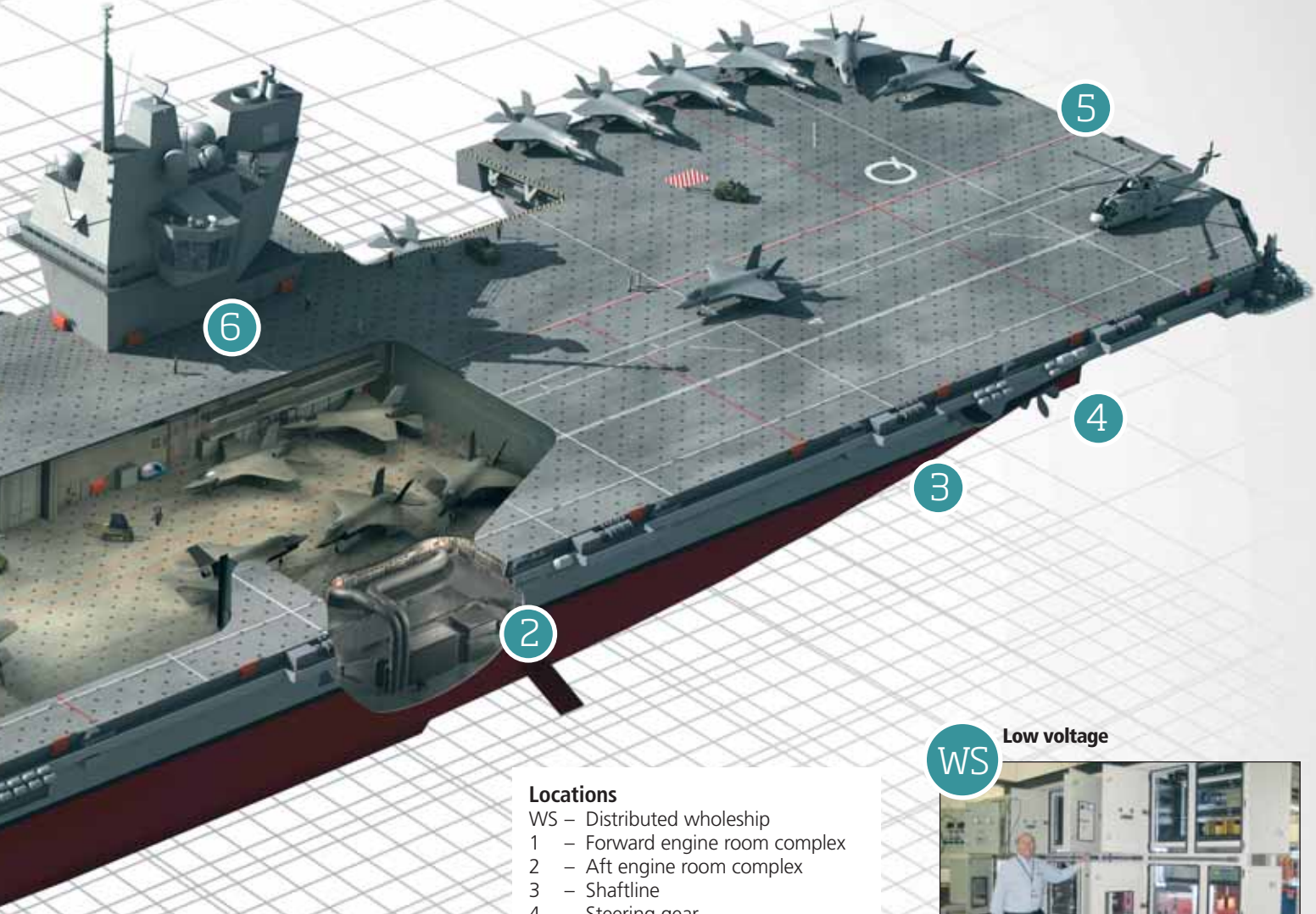
Gas turbine change unit x 2

Power generation – diesel generato

Main DG x 4

zabeth Class

Power & Propulsion Sub Alliance
'Powering The Nation's Flagships'



Locations
WS – Distributed wholeship
1 – Forward engine room complex
2 – Aft engine room complex
3 – Shaftline
4 – Steering gear
5 – Emergency diesel compartment
6 – Gas turbine compartments

Low voltage

LV switchboard

High voltage electric propulsion

DG alternator x 4

Stabilisers

Stabilisers x 4

IPMS

IPMS console

Up, up and away

A great amount of progress on the QE Class programme was achieved in the final months of 2009, helping the project to build momentum and set the groundwork for all of the milestones which are due to be reached in 2010.

In September last year, the hydraulic power unit for the forward aircraft lift successfully completed its factory acceptance test, which involved a full power, maximum capability trial over a period of two days. This was one of the first large-scale units which had undergone testing of all of its circuits to enable the team to ramp up to full power, in preparation for installation and operation on HMS Queen Elizabeth.

The power unit is the heart of the aircraft lift, providing the lifting engines with high pressure hydraulic fluid at sufficient flow to drive the lift platform and payload – a combined weight of more than 200 tonnes – from the hangar to the flight deck.

The sophisticated design of the lifting system has been an evolutionary process for MacTaggart Scott, the Edinburgh-based company charged with design and delivery of the aircraft lifts. The company has a wealth of previous experience developing systems for other ships in the Royal Navy's fleet as well as foreign navies. But this lift power unit is the largest of its type so far produced. Alan Bevan from MacTaggart Scott said: "This unit weighs 16.5 tonnes, which makes it the largest unit of its type we've produced. It uses up to 800 kilowatts of power and its maximum output is more than 1,600 litres of high-pressure hydraulic fluid per minute.

"It is much more robust and sophisticated compared to previous lifts. The main lifting circuitry is dual-redundant and fail-safe, with automatic braking in the event of emergencies. This, combined with other safety features including the elimination of stored energy to reduce risk of explosion or fire, makes these not only the largest, but also the safest, aircraft lifts world-wide. However, what is more significant is that the power unit and its control system are designed and manufactured in the UK."

The test at MacTaggart Scott's factory requires more power and cooling water than is available from conventional utility supplies to the works. A 1250kVA 60Hz container-mounted power unit and a large cooling water plant have been temporarily installed for the duration of trials on all four of the aircraft lift power units, each of which has been designed and will be certified to Lloyds Register rules in line with the rest of the ship.

"It is significant that the power unit and control system are designed and manufactured in the UK"

Alan Bevan, MacTaggart Scott

Contracts £300m o

Some of UK's leading companies on board to deliver HMS Queen Elizabeth

PROCUREMENT

The Aircraft Carrier Alliance (ACA) is forging ahead on the Queen Elizabeth (QE) Class – it has made significant progress, with contract awards worth £325 million being made recently to previously announced preferred bidders, which will drive momentum into the ongoing build of HMS Queen Elizabeth.

In January 2010, Secretary of State for Scotland Jim Murphy MP visited Govan to welcome the contracts which have been placed in Scotland. Following the visit, he said: "These contract awards are great news for Glasgow, the Scottish economy and Scottish jobs. There has never been any doubt how important the aircraft carriers are to Scotland as a multi-billion pound project securing thousands of jobs."

Glasgow-based firm Henry Abrams has been awarded the work to ship all of the units and larger blocks of the aircraft carriers, some of which weigh up to 13,500 tonnes, around the country by sea-going

ABOVE: Secretary of State for Scotland Jim Murphy MP meets some apprentices who have worked on

worth more than f 'vital importance'

barge, in a deal worth £85 million.

Tyco Fire and Integrated Solutions, based in Manchester, has been awarded the contract to provide the fixed fire-fighting equipment, which includes all of the sprinkler systems for both ships, in a deal worth £15 million. A joint venture company has also been set up by Cape and Pyeroy called Ship Support Services Limited (SSSL) to provide paint and access equipment, including all scaffolding which will be used during the build process for both ships, in a contract worth £105m.

However, the largest contract award is for the heating, ventilation and air conditioning equipment, which was awarded to Imtech and is worth £120 million.

Commenting on the contract awards, ACA Commercial Director Andy Morrish said: "Each of these contracts is of vital importance to the programme and I am delighted that we have been successful in signing up some of the UK's top companies in their field to work with us and deliver these fantastic ships."

ABOVE: Lower Block 3 taking shape at Govan

"I am delighted that we have signed up some of the UK's top companies to work with us"
Andy Morrish, ACA Commercial Director

ABOVE: Secretary of State for Scotland Jim Murphy MP with John Morrison, Ship Manager at Govan for HMS Queen Elizabeth

the QE class ships

Each of the successful suppliers was equally delighted about winning their respective contracts. Hugh Pelham, speaking on behalf of SSSL, said: "Winning this contract is great news for Ship Support Services and Cape and Pyeroy. Our experience in the marine sector is second to none and we look forward with confidence to working on the largest ships ever constructed by the Royal Navy."

Speaking about the award for the transport contract, Michael Abram from Henry Abrams said: "In the long seafaring history of our family, Henry Abram & Sons Ltd is absolutely delighted to be awarded this contract. The scope of work is challenging but we have worked very well with BAE Systems for many years on MoD projects and look forward to working together again.

"We now plan to employ naval architects, structural engineers, design engineers, graduates and administration staff to work alongside our existing staff and consortium Partners – Malin Marine Consultants Ltd, Anchor Marine Transportation Ltd and Abnormal Load Engineering Ltd – to ensure safe and successful delivery of all cargoes to Rosyth."

Further contracts are expected to be awarded in the coming months as further progress on the delivery of the QE Class programme is made.

Event gives senior stakeholders an insight into the work being done on the integration of ship and air mission systems

ABOVE: Computer-generated view of the flight deck on the QE Class

Mission Systems: lea

MISSION SYSTEMS

Key senior stakeholders were recently invited to see how a series of visualisation and experimentation (V&E) events have been helping develop and derisk the integration required to support the Queen Elizabeth (QE) Class carriers and Joint Combat Aircraft (JCA) programmes.

The ongoing events, conducted by the Aircraft Carrier Alliance, JCA team and JCA integration team, are part of the QE Class Mission System (MS) Development and Integration programme.

The most recent event took place at the Maritime Integration and Support Centre (MISC) in Portsmouth in November 2009. The stakeholders were able to gain an increased understanding of the processes and systems used, as well as the possible challenges likely to be encountered – and solutions being progressed.

The QE Class Mission System Integration facility at the MISC provides the platform for V&E activities, and the early integration of real, maturing and prototype systems. As the work evolves, the facility will enable the integration of delivered systems prior to their installation onboard the QE Class.

Investigations carried out during the V&E events draw on the expertise of active Royal Navy and Royal Air Force personnel and subject matter experts from the UK MoD and industry. They are used to take up roles within the QE Class Carriers' staff and JCA squadrons, operating actual and representative systems within an immersive synthetic scenario. The environment is used to force a number of system interactions with the aim of delivering key engineering objectives which ultimately lead to the delivery of capability.

ABOVE: Head of Capital Ships, Tony Graham, is given first-hand insight into Mission Systems

The scenario depicts conflict between two imaginary countries. A range of strike, suppression of enemy air defence, close air support and counter air missions can be played out, ensuring different planning cycles and systems are exercised. To ensure that the activity accounts for the constraints imposed on carrier-borne aviation, the scenario includes a maritime rotary wing element and the influence of environmental conditions. Command and control, computer systems and intelligence, together with aircraft, air and ship-based support systems, must all work in harmony to ensure mission success.

Teams from UK and US defence organisations and industries contribute to the simulation. BAE Systems Insyte is a member of the Aircraft Carrier Alliance, responsible for the QE Class MS, and a principal partner to Lockheed Martin in the development of the F-35 Lightning II.

A Command, Control, Communications, Computers and Intelligence applications trial has been used to investigate mission support and flight scheduling applications for the QE Class and its on-board aircraft in support of carrier strike capability.

"The synthetic environment allows scenarios to represent the dynamics of ship-board operations and combat activity, and can be used to create stressing situations and interaction between ship and air support groups and operations staff," said Cdr Owen McDermott, Mission System Lead, MoD.

For the November event, the QE Class MS and JCA project teams conducted a series of investigations to mitigate key risks across the scope of the QE Class MS, including comms message handling and integration, aircraft logistics management, full mission planning and execution, and aircraft control via data link.

ding the way

The teams also had some clear messages that they wanted the senior stakeholders to take away with them. Cdr Andy Lison, the Aviation Lead for the QE Class programme, said: "We're working to mesh the biggest capital ships programme the UK has ever seen with the most complex aviation programme that we've ever been involved with. We're doing early acceptance and derisking so that everything is as it should be when we go into service. We're not talking about 'paper' anymore – 60 per cent of the QE Class is in build now and actually in production."

The JCA is no longer a 'paper' aeroplane. A production-standard Short Take-Off Vertical Landing JCA is now being flown in the US and the first British aircraft is being manufactured. Captain Rick Thompson, Programme Manager for JCA, said: "We're looking at a design that is US/UK, we're looking at a UK environment, and we're trying to pull those together. The work we are doing here is enabling us to address 13 major project risks within the programme early. We are achieving a significant milestone. If the Autonomic Logistics Information System and Off-Board Mission Support work properly, we can maximise the capability of the JCA."

His message to the assembled guests was very straightforward: "Take a look at this facility, look at what it offers and look to see how we can use it from a UK perspective to start to exploit how we can integrate and operate JCA into the UK system of systems."

We're not talking about 'paper' anymore – 60 per cent of the QE Class is in build and production now

Cdr Andy Lison, Aviation Lead. QE Class programme

Full steam ahead on Tyneside

'Historic day' for shipbuilding in North East as A&P Tyne starts work

The Aircraft Carrier Alliance has recently announced the £55m deal with Tyneside shipbuilders A&P Tyne to build two sections of the UK's future flagships the HMS Queen Elizabeth and HMS Prince of Wales.

Work is already under way on the lower section of one of the mid blocks for the first aircraft carrier and this will progress to building some of the upper sections that will make up part of the deck. The sections that are being built on Tyneside will make up approximately 4,000 tonnes of each ship, which is the equivalent of more than 420 double decker buses.

The contract for work on the Queen Elizabeth Class Aircraft Carriers will see many of the 210 A&P Tyne staff working on this massive construction project over the next five years. Speaking after signing the contract, A&P's Group Managing Director Chris Bell was delighted. He said: "Our Hebburn workforce has a proud tradition of delivering a first-rate job and I have no doubt that they will continue to do so on this hugely prestigious project. At A&P Tyne, we are set to deliver a substantial part of these ships and I am delighted that we can represent the North East on the project."

Constituency MP for Jarrow and the A&P Tyne yard in Hebburn, Stephen Hepburn, was also keen to congratulate the local workforce. He said: "This is a historic day for the shipbuilding industry in the North East. It is fantastic that the A&P Tyne workforce, particularly the young apprentices starting a career at the yard, will have the opportunity to work on a project that is so important to the nation."

Due to the size and scale of build programme for the two new aircraft carriers, blocks for each are being built across the country, using the skills of thousands of people in all the major ship yards in the UK. Work on the Tyneside element is currently progressing to plan. Aircraft Carrier Alliance Programme Director Geoff Searle said: "The commitment of the Tyneside workforce to building these ships is very evident and I am delighted that A&P Tyne is now officially on contract and has started to make such good progress."

Clyde rings in the New Year by cutting steel on largest super block

Govan team takes charge of next stage

ABOVE: David McLellan was given the honour of starting the plasma cutting machine

STEEL CUT

The BAE Systems Surface Ships workforce at Govan in Glasgow rang in the New Year with the sound of cutting steel for the largest super block for the first aircraft carrier, which will weigh in at almost 11,500 tonnes when fully outfitted.

Work has been progressing well on Lower Block 3, the first of their assigned blocks, which has enabled the Clyde team to start in earnest on Lower Block 4.

Lower Block 4 is both the largest and most complex section of the carrier, making up the stern section. It houses the power and propulsion equipment for the ship, including propeller shafts, generators and electric propulsion equipment. More than 5,000 tonnes of steel will be used to build the block, which will contain more than 39,600 metres of pipe and more than 324 miles of cable – enough to stretch from Glasgow to Cork in Ireland.

Speaking after the steel cut, Clyde Project Director Steven Carroll was keen to point to the hard work undertaken by teams across the Aircraft Carrier Alliance, which enabled the Clyde to cut steel on time and in line with their programme milestones. He said: "Right across the Alliance, design and engineering teams have been working hard to ensure we achieved this substantial milestone of cutting the first steel on the largest block of HMS Queen Elizabeth at the start of the year, and their determination has certainly paid off.

"It is now the turn of the operations team at Govan to take charge of this part of the programme and continue the excellent work they have been doing since first steel for the hull was cut in July last year."

David McLellan was the Principal Detail Designer with responsibility for Structural Detail Design and Production Outputs for all the Machinery areas of Lower Block 4. He was given the honour of pushing the button to start the plasma cutting machine, which was used to cut the first steel plate for the super block. He said: "It is a huge honour to be asked to start the manufacture of the second block at Govan. All of the engineers and designers involved have done an excellent job to ensure we reached the start of manufacture on schedule. It's a great achievement and something that everyone in the team can be very proud of."

Continuous production carries on now until the block is ready for transportation to Rosyth at the end of 2012.

2010 an important year for programme

2010 is set to be filled with many important events which will showcase the level of commitment to the QE Class programme around the UK:

February
The first set of units constructed at A&P Tyne will be completed and ready for transportation to Portsmouth where they will make up part of the super block being constructed at BAE Systems Surface Ships' facility on the south coast.

March
LB01, the bow section of HMS Queen Elizabeth, will leave Appledore and be transported to Rosyth.

April
The main diesel denerators will be delivered to Portsmouth.

BAE Systems in Portsmouth is expected to cut the first steel on Lower Block 2, which will make up part of the hull for the first aircraft carrier.