

THE AIR LEAGUE NEWSLETTER

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IT'S HEATHROW – AGAIN - MAYBE!

The Air League has expressed its full endorsement of the government's decision, announced on October 25, to support the building of a third runway at Heathrow. After nearly seven years of consultations, debates and the Davies Commission, the government announcement was expected to deliver the ultimate, long-awaited decision on whether Heathrow or Gatwick would get extra runway capacity, with a hope that prolonged uncertainty for airlines, airport planners, local authorities and local populations would be replaced by a clear route-map for South East airport development. However, the decision fell short of offering a definitive blueprint for a long term solution and having confirmed Heathrow as the chosen site for a new runway, has highlighted that the decision will be subject to more "full and fair public consultation" leading up to a vote in the House of Commons, probably in 2018. This timescale is dictated by the government's own required planning and Parliamentary procedures, but even if this proposal is voted through by a majority in Parliament, and there are no guarantees that this will happen, a new wave of legal challenges is certain, potentially adding more years of delay and uncertainty.

Many MPs across the country, as well as airport, airline and business leaders, the CBI, SNP and Trade Unions have all expressed their support for the decision, but the Foreign Secretary has said he thinks the plan will be stopped and has predicted that the extra runway won't ever be built. Local MPs have also repeated their pledges to oppose further expansion. Heathrow Airport has said that building work could start in 2021, but this assumes new legal challenges are not protracted. There would now appear to be little possibility that the target completion date of 2025 can be met, and 2030 might be a more realistic delivery date, if indeed a final go-ahead is permitted. Before then, both Heathrow and Gatwick will reach saturation point, and forced to turn away international air traffic and business worth £billions, at a time when a post-EU UK will be embarking on its chosen path as a globally-focussed, free-trading nation.

It seems almost certain that new runways will be needed at both Heathrow and Gatwick, so while the debate over LHR will undoubtedly continue, many will ask why the go-ahead was not given to expand Gatwick now, rather than later, especially as it is self-funded. The airlines have given general backing to the government's Heathrow decision, including IAG CEO Willy Walsh, but he has also suggested that the new runway is becoming too expensive, could drive up fares and may be too late. Outspoken head



The site of the planned new third runway at Heathrow, with the BA Waterside Headquarters to the south west. (Editor's photo)

of Ryanair, Michael O'Leary, has criticised the government for not looking at a longer term solution by giving the go-ahead for new runways at Gatwick and Stansted as well as Heathrow, pointing out that competition will be restricted, and air fares raised if new runway investment is concentrated at Heathrow alone. So while the decision will be welcomed by almost everyone with an interest in the UK's thriving aviation sector, this is one long haul journey that is still some distance from a safe landing.

IN THIS ISSUE

RAF Flies East P2 • Comment by Aeronautica P3 • Boeing Centenary P4-5 • Leading Edge news P7 • New members P8

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RAF FLIES EAST

Eight Royal Air Force Typhoon combat jets have taken part in joint air exercises with aircraft from Malaysia, Singapore, Australia and New Zealand, supported by Airbus A330 Voyager tankers and C-17 transports, which also carried support personnel and equipment. Underlining the UK's renewed defence focus on a more global outlook, the deployment is part of a wider-ranging Far East visit and has seen intensive exercise missions taking place over Malaysian skies.



Flags of the participating Air Forces

The deployment base for Exercise Bersama Lima 16, at Butterworth, was once a major Commonwealth air hub for operations in defence of the newly-formed Malaysian state in the 1960s, and regularly saw RAF operations by transport aircraft, tankers, Hunter and Canberra aircraft and V-bombers. With increasing insecurity in the region the exercise was a demonstration that the UK is a willing regional partner helping to support local air forces. The Typhoons later flew on non-stop to Japan. At the same time, the RAF Red Arrows aerobatic team has also embarked on an extensive deployment to the Far East, Gulf, China and India, where it participated in Indian Air Force anniversary celebrations.



RAF Typhoons over Malaysia
Crown Copyright RAF 2016



Media Watch

Chief Executive Andrew Brookes engaged in a piece to camera at Newark Air Museum in September for a BBC Look North programme on the RAF in Lincolnshire.

THINKING OUT OF THE BOX

For decades procurement inflation has been recognised as a major challenge within the defence community, but despite many efforts to come up with better ways of acquiring new programmes – from the creation of a whole new policy directive (i.e. Smart Procurement) to new forms of long-term bought-in service provision (e.g. Air Tanker), the upward cost spiral of new programmes has continued relentlessly. A Spitfire cost £5,000. A Lightning F1 cost £500,000. A Harrier GR1 was £1 million...an F-35B is currently \$110 million (2001 estimate \$35 million!) The cost of developing new weapons, including aircraft, is directly dependent not only on the complexity and technical risk attached to the programme, but also the intended level of production and associated economies of scale. As Britain's domestic defence market has steadily shrunk in numerical terms, it has become essential to sign up overseas partners and export customers to arrive at a viable production run. The huge challenge of doing this when the US competition can launch a new programme with orders for hundreds, or perhaps thousands, of units, might seem to be an impossible task, but as we have seen in most recent US military aircraft programmes, even this level of mass procurement does not seem to have produced the hoped-for cost reductions. On the face of it some UK defence programmes have been impossibly ambitious in proportion to the numbers eventually ordered. Meeting the advanced specification for the Royal Navy's Type 45 destroyers for example cost as much for a six-ship class (originally planned to be 12) as a US equivalent design, with 50 ships ordered. The cancelled BAE Nimrod MRA4 had a more ambitious performance and planned capability than the later Boeing P-8A, yet the UK need slipped down to a mere nine aircraft versus around 150 P-8As for the US Navy. So, if the UK defence sector is to survive into future generations and not just fade away as MOD buys off-the-shelf from the USA each time, some "out of the box" thinking will be needed to break the mould.

During October, the Royal Navy held a comprehensive exercise, Unmanned Warrior, that demonstrated a significant level of innovative thinking that might radically change how today's surveillance and anti-submarine operations might be undertaken more effectively and also at greatly reduced costs. There was multi-service and US participation in the exercise, part of a wider NATO Joint Warrior exercise, as well as a UK and international line-up of defence companies who were able to demonstrate their latest systems in a realistic operational environment with real-time data distribution and the involvement of aircraft, surface ships and underwater vessels. Perhaps most significant of all however was the way in which the Royal Navy in cooperation with QinetiQ, and such companies as BAE Systems, Thales, Leonardo, Northrop Grumman and Boeing, were able to show how future innovative techniques were being harnessed to create new ways of doing things better. The emergence of unmanned systems with a high level of autonomy in carrying out programmed tasks and which can stay on station for over 24 hours in some cases offers operators far more flexibility compared to, for example, a conventional helicopter carrying out a mission from a small ship deck. The difference in operating costs and ability to provide persistent cover will almost certainly transform future operations. It already has done in the case of hired RN Scan Eagle UAVs, built by Insitu and managed by Boeing Defence, which have given warships looking for pirates, drug smugglers, illegal migrants and distressed refugees, greatly extended aerial reach in the Middle East and Mediterranean. The term "Remotely Piloted Air Systems" is fast becoming obsolete, as more autonomous missions no longer require a human operator to fly the aircraft by watching a screen in a control cabin.



The mission tasking is programmed, along with the latest situation updates, and off it goes. Human personnel will concentrate in the future on analysis of data and imagery, mission management and decision-making, allowing more automation of dull, dirty and dangerous sorties. This is really why UAVs first came into fashion, but many such operations were then an aspiration. Autonomous missions, including flying in controlled air space, has now become a practical reality and has moved much closer to every-day routine. The UK MOD and RN are taking a lead in addressing the potential impact of such innovation, including artificial intelligence, and taking steps to prepare for the changes in doctrine and operations that will follow. But while the RN is operating a handful of UAVs on short-term hire from Boeing, many other navies, including China, are already buying large fleets of small shipboard unmanned air vehicles to be cost-effective force multipliers, offering persistent surveillance at low cost.

BOEING CELEBRATES ITS CENTENARY

Editor's photos



Preserved original Boeing design office and factory at Renton.

The Air League's annual keynote Andrew Humphrey Memorial Lecture was delivered this year by Michael J Lombardi, Corporate historian of the Boeing Company, which in 2016 is celebrating the Centenary of its formation. This report is a shortened version of his presentation, prepared especially by Mr Lombardi for this newsletter.

Aerospace is like no other human endeavour, our industry has made the dreams of humanity into reality, the dream of flight, the dream of travelling beyond the atmosphere, of visiting the Moon and now travelling into deep space, onto Mars and beyond. Our war-fighters have used the planes, missiles and other weapons we build to defeat tyranny and made the dream of freedom a reality for millions.

On July 16, 1916, William Boeing began to pursue his own dream of flight by founding the Pacific Aero Products, a year later he changed the name to the Boeing Airplane Company. Bill Boeing had a vision for the future where airplanes replaced trains and ships as a primary source of travel and commerce. Well aware of how the airplane had opened up a whole new arena of warfare over the battlefields in France and Belgium, he also became an early advocate of airpower in the United States. The fledgling company participated in the war effort but barely produced 100 airplanes before the Armistice. To survive the post-war downturn Bill Boeing kept the doors open with his own funds and kept his employees busy building furniture and speed boats, when military contracts started coming in (one of the first being refurbishment of DH-4 bombers) his company was ready. In 1923 the Boeing Airplane Company flew its first original fighter design, the PW-9, and was soon a challenger to Curtiss as the primary builder of fighter planes for the United States military.

The passage of the 1925 Airmail Act created a catalyst for the formation of airlines in the United States by opening up airmail routes to private operators. Bill Boeing bid on, and won, the longest route flying mail from San Francisco to Chicago. To operate the route he founded a new airline, Boeing Air Transport, and began operations in July 1927. Bill Boeing acquired other airlines including



Boeing P-12 bi-plane fighter of the 1920s.

BOEING CELEBRATES *continued*

Pacific Air transport that covered the entire west coast of the US, and he also created a holding company for his manufacturing and airline businesses called Boeing Aircraft and Transport Corporation. Other manufactures and airlines were acquired including; Sikorsky, Vought, Stearman, Hamilton, Standard Steel Propeller, and to ensure that his planes would have a steady supply of engines he also brought Pratt and Whitney into the fold and with that he changed the name of the company to United Aircraft and Transport Corporation (UATC). UATC quickly became one of the largest and most successful business in the United States and by 1930 the corporation's airlines had reached New York creating America's first transcontinental airline – Bill Boeing had realized his vision for the airplane and had given America the gift of an aviation infrastructure.

All of this was accomplished as the world was plunging into the great Depression. In 1933 President Franklin Roosevelt swept into office and his administration had little sympathy for the business world including Bill Boeing and other successful aviation leaders. In 1934 the US Congress held investigations looking into alleged collusion between the airlines, including Bill Boeing's, and the prior administration's post master general. A very patriotic and highly ethical William Boeing was crushed by the accusations and while no wrong doing was discovered, Boeing resigned his chairmanship and retired from the aviation business, he also directed that UATC be broken up. The breakup of UATC created three corporations that still exist today: The Boeing Company, United Technologies and United Airlines. In just eighteen years, Bill Boeing had realized his dream and had given America the first transcontinental airline, established two of world's largest aerospace companies and one of the world's largest airlines.

The now independent Boeing Airplane Company put all of its effort into building big airplanes in particular a single prototype bomber designated Model 299, soon given the nickname "Flying Fortress" it would become the most important airplane in Boeing history. All of



Boeing Model 80 A-1 tri-engine airliner

the company's resources were committed to building the Model 299 which first flew in July 1935. In that October tragedy struck when the lone prototype was destroyed and the crew perished in an accident during a US Army Air Corps bomber fly-off at Wright Field in Dayton Ohio. Without an airplane, Boeing could not complete the competition and with few other business prospects it is likely that the company would have come to an end. Fortunately the innovation built into the Model 299 was too great to ignore, the Air Corps found discretionary funds to give Boeing a contract for just thirteen airplanes - that contract saved the Boeing Company. Those thirteen YB-17 Flying Fortresses went on to convince the Air Corps, America's military leaders and President Roosevelt, that airpower would be the United States' primary strategy for fighting and winning a future war. During the Second World War, Boeing and its heritage companies, Douglas Aircraft and North American Aviation, combined to build over 90,000 airplanes for the war effort including; Flying Fortresses, Mustangs, Harvards, Bostons, Mitchells and Dakotas that served in the RAF and the air forces of the Commonwealth.



The aircraft that set the pattern for subsequent Boeing civil jetliners, the B-47 six-engine nuclear bomber.



A famous unauthorised rolling event taken from the Model 367 Dash 80 prototype of the B707 which first flew in 1954.

BOEING CELEBRATES *continued*



The Boeing 777 family continues in production with a new X generation for the next decade.

As the war was coming to an end the seeds for the future of the company were being planted as Boeing introduced a revolutionary design that combined the swept wing with podded jet engines to create the world's first large swept wing jet; the B-47 Stratojet.

The swept wing came to Boeing in May 1945 by way of a hand written letter sent from Germany by the company's leading aerodynamicist George Schairer who was serving on the U.S. Army Air Force Scientific Advisory Group tasked with securing Nazi aircraft and rocket research. Boeing engineers found dramatic results during wind tunnel test of Schairer's swept wing data but they also discovered that the wings had to remain clean to achieve the high speed benefits, this was a problem since the standard design for multi-engine airplanes was to mount the engines on or in the wings. Boeing Chief Engineer Ed Wells came up with the idea of mounting engines in pods suspended from the wings. These discoveries came together in the Boeing wind tunnel as the optimal design for a subsonic jet and resulted in the revolutionary XB-47 that first flew in December 1947. The importance of the B-47 cannot be understated, it pioneered the basic design for large subsonic jets and set the pattern that is still used today on all of the commercial jets built at Boeing and Airbus.

In October 1948, following the introduction of the B-47, the U.S. Air Force requested a new heavy bomber with global range and high speed. Unfortunately the early jet engines used a lot of fuel and it seemed nearly impossible to find a design that could combine size, jet engines, and long range. To fulfil the Air Force's bomber requirements, Boeing engineers settled on a proposal that had more in common with the World War Two era B-29 than the sleek modern B-47. When the proposal was submitted to Colonel Pete Warden at Wright-Patterson AFB, it was rejected – the Air Force wanted jet power.

That was Friday afternoon – the Boeing crew had until Monday to submit a new proposal. Fortunately some

of Boeing's greatest designers were there. The team huddled in a Dayton hotel and pushed the design and their knowledge of aeronautics as far as they could to achieve a breakthrough – a jet powered long range heavy bomber. A model was carved from balsa wood purchased at a local hobby store. On Monday the new proposal, only 33 pages long, and the balsa wood model were presented to Col. Warden who proclaimed "Now we have an airplane – this is the B-52." Nearly seventy years later the B-52 remains a frontline U.S. bomber and the balsa model survives as part of the collection of the Boeing Archives.

The innovative B-47 sparked some interest at Boeing and with Pan American Airlines in the feasibility of a jet transport as early as 1948. After de Havilland took the lead by putting the world's first commercial jetliner, the D.H.106 Comet, into service in May of 1952, it did prove that there was a market for commercial jets. Boeing leadership had also seen that there was a strong possibility that the U.S. Air Force would be interested in a jet tanker to keep pace with their new B-52 Stratofortress fleet. These observations helped support Boeing CEO Bill Allen's decision to go forward with the development of a prototype jet transport, it was a tremendous risk, just as the company had done twenty years early on the Flying Fortress, the company was committing all of its resources to build a single prototype but this time there was no demand for the airplane from government or commercial customers. On July 15th 1954, the 38th anniversary of the Boeing Company, Boeing flew its new prototype the Model 367-80 nicknamed "The Dash Eighty." A month after the first flight, the gamble began to pay off as the U.S. Air Force gave Boeing an initial order for the Dash 80's first offspring – the KC-135 Stratotanker.

The Dash 80 helped Boeing to create a public expectation and excitement for jets that eased the introduction of the airplanes second offspring; the 707. The 707 represents the point in commercial aviation history where propellers once and for all gave way to jets and air travel became affordable and available. Following the 707 the expanding family of Boeing commercial jets brought a number of innovations to the market including the introduction of the first twin-aisle wide-body jet with the "Queen of the Skies: the 747. The size of the 747, its range and economy made it possible for the first time in history for any person on the planet to fly. The 757 and 767 introduced the two crew "glass cockpit" using computers to make the flight deck less crowded, more efficient and safe. The 767 also pioneered ETOPS or Extended-range Twin-engine Operational Performance Standards, a rule allowing twin engine jets to fly long distances between airfields which resulted in a dramatic increase in air travel especially across the Atlantic. The 777 extended the twin jet family and did for the Pacific what the 767 had done for travel across the Atlantic. Today the 787, has introduced a number of advances and innovation including its majority composite structures, a first for large commercial jets, an all-electric architecture and its focus on improving the passenger experience with larger windows, more pressure and moisture in the cabin and changing how we fly by increasing point-to-point flights, eliminating the need to change flights.

BOEING CELEBRATES *continued*

The next great dream to make real is exploring deep space. Boeing and its heritage companies have built nearly every crewed space vehicle including: Mercury, Gemini, Lunar Rover, Space Shuttle and teamed together to build the Apollo/Saturn spacecraft that took humankind to the moon and back. Today Boeing is building the CST-100 that will make commercial space travel a reality and is also building the Space Launch System that will propel humankind on the journey to Mars. In this 100th year of Boeing history the pioneering, enterprising spirit of Bill Boeing is still very evident in the words of Boeing CEO Dennis Muilenburg who said he believes the first person to step foot on Mars will "arrive there riding on a Boeing rocket." These are only a few of the multitude of stories from the Boeing Company's 100 years, hopefully these stores of human endeavor, risk taking, invention and discovery will provide lessons for our way forward and inspire the next generation of aerospace pioneers to seek even greater dreams and make those dreams into reality.



The short-lived Sonic Cruiser project which led to today's 787 Dreamliner, a far more conventional solution.

New Joint Programme

The Air League, Boeing and Royal Air Force Air Cadets have joined forces to launch an exciting new programme that will see dozens of teenage air cadets build an ultralight aircraft. The programme, called Centennial Wings, was launched at Farnborough on the date of Boeing's centenary, with a completion date in 2018 – the RAF's own centenary. It is planned that the aircraft will fly at Farnborough in 2018, adjacent to the site of the founding of the Royal Flying Corps, which became the RAF in 1918.

Centennial Wings is designed to complement and enhance the existing RAF Air Training Corps cadets' curriculum with hands-on practical application of classroom theory, in order to help inspire young people in Britain to study science, technology, engineering and maths (STEM) subjects and to take an interest in careers in the military and aerospace. Said Sir Michael Arthur, president, Boeing Europe and managing director, Boeing UK. "These young men and women are the future of our industry and I could not be more proud that we can support this engaging, hands-on STEM initiative."

The Sting4 finished product



The Centennial Wings badge

Approximately 70 ATC cadets from the Northern Ireland ATC Wing containing 17 Squadrons will work to assemble a Sting S4 ultralight aircraft from a kit, under the guidance of Sqn Ldr Ian Campbell, Wg Cdr Mike Miskimmin and volunteers from the Ulster Aviation Society, located in Lisburn, Northern Ireland. Boeing engineers will also mentor the programme.

The team of ATC cadets will plan and build the aircraft over a total of more than 400 hours and use the completed Sting S4 for flying training, once it has been certified to fly by the Light Aircraft Association. This is the first time Boeing, The Air League and the ATC Cadets have collaborated in this way to support the development of talented young people and the future of civilian and military aerospace in this country.

MEMBERS' NEWS

Engil John,

2016 Victor Gauntlett Flying Scholarship

I am writing to sincerely thank The Air League for my flying scholarship at the South Warwickshire flying school where I flew my first twelve hours towards my Private Pilot Licence on the C-152. During my two weeks I also happily sat and passed two of my PPL theory exams: Air Law & Human Factors. I have spent some of the best two weeks of my life at the South Warwickshire Flying School where I can confidently say I greatly advanced my flying skills, and learned more than ever before, having from near to no experience, to being able to take off, land and fly an aircraft myself and all this due to my amazing instructors, my sponsors and most of all The Air League for creating these wonderful opportunities for young people which allowed me to start living my dream; that of flying and working with aircraft. I feel extremely honoured having been chosen for this scholarship which has allowed me not only to advance my flying skill and knowledge in aviation but also reinforce and renew my love of the air all over again! I really hope that I can be able to inspire other young people and younger Air Cadets opening their eyes to these most wonderful opportunities on offer. Thank you again for everything!



Eleanor Nicholls,

Air League Trust, Gliding Scholarship

Having previously flown as a gliding instructor for the air cadets, the scholarship has introduced me to club gliding and to dust off the cobwebs from my air cadet gliding log book (since the Viking fleet have been grounded for a few years now). I was both excited to get back into the hobby I love but also apprehensive to see how well I would remember everything! I am happy to say it all came back to me pretty quickly; I was able to adjust to the BGA; develop my soaring technique and work on cross country skills (which I have not done before). Following some strong windy days, I went off the winch and the same day I completed my 1-hour solo (which can be used towards my cross country endorsement).

Following a couple of aero tow flights (not something I had done previously) I also soloed on aero tow - I certainly didn't expect to achieve this so quickly. Needless to say, thanks to Bicester Gliding Centre and The Air League, I have had a huge boost in confidence and I am now enjoying club gliding. It is sad that air cadet gliding is currently still not flying but I hope to be able to instruct again with them as soon as it is possible.

Toby Freeland,

Gliding and Engineering Scholarship

I would like to thank all at The Air League Trust who were involved with organising and supporting the two scholarships I received this year. I have gained a huge amount from these scholarships. As I have just been accepted onto an Aeronautical Engineering Course at Imperial, working closely with engineers at Booker Aviation this opened my eyes into maintenance engineering but also made me acutely aware of how careful design can make an aircraft a technicians dream or nightmare. I also spent 3 days gliding at Lasham Gliding Society where I completed a number of firsts: First XC flight (100km) where the instructor never took the controls and I made most of the decisions, first solo in a K21, first solo at Lasham, first solo on Aerotow. These many skills will help me supremely in my desired future of becoming a competition pilot. Thank you once again for all this opportunity.

Jonathan Rawson

Engineering scholarship with Leonardo Helicopters:

Work experience at Leonardo Helicopters is certainly something I would recommend partaking in, for all aspiring engineers, pilots and businessmen. The week started by checking into the Manor Hotel which was situated 10 minutes away from Leonardo Helicopters which meant travel was no issue.

The week started by meeting the other 16 students who were also attending the course (aged 16-18). We all had a lot in common which we discovered when playing the icebreaker games, the graduates had set out for us (who were running the course). Following these icebreaker games, we had a talk and video on FOD (foreign object debris) and the dangers that it can pose around an airfield and the steps that we and the company take to reduce it- so foreign object debris does not compromise flight safety while testing the aircraft. In addition to this we were taken on a tour of the production line on the Monday and were allowed to see the aircraft in their varying stages of construction.

The second day proved to be the most enjoyable for me as we were allowed to take a tour of the flight training facility and were given an introduction to the aspects of flying a helicopter- and the principles of theory of flight- such as Bernoulli's principle of lift. In addition to this we got a chance to fly the new Augusta Westland AW101 simulators- which was the most enjoyable aspect of work experience in my opinion. In addition to this we got the chance to meet some of the apprentices the company hires and explore other potential career options.

The third day allowed us to see the manufacture of the individual helicopter components and see the very small tolerances that are in place. The tour of the component manufacturing centre allowed me to see a Computer Integrated Manufacture system (CIM) which was a unique experience. In addition to this we were able to see how components were "stress tested" for hours on end to make sure they were suitable for use.

The fourth day was started with a talk on "personal branding" a process which allows candidates to distinguish themselves from other candidates when applying for jobs- and the importance of networking sites such

as LinkedIn for professional networking. The fourth and fifth days were spent on the production of our own bottle rockets, along with presenting our ideas for the rockets to a panel of judges and launching them. In addition to this at the end of the week we had accrued enough hours to be eligible to gain an "industrial cadet level 2 silver" award and certificate which is gained with 30 hours or more of experience in an engineering environment.

In conclusion I would recommend the Engineering scholarship from The Air League along with work experience with Leonardo Helicopters as I learnt a lot and found it very enjoyable - and it will definitely benefit me in a future career in the aviation industry.

2017 Subscriptions

Annual membership rates have been unchanged since 2013. Revised subscriptions with effect from 1 January 2017 were approved by the Air League Trustees on 20 July 2016. The new rates will be:

Corporate Membership Category	Rate (Direct Debit)	Rate (Cash)
RED	£4,000 & above	£4,000 & above
WHITE	£1,250-£4,000	£1,250-£4,000
BLUE	£650-£1,250	£660-£1,250
GREEN	£200	£220
Individual Membership Category	Rate (Direct Debit)	Rate (Cash)
Full (over age 22)	£70	£73
Retired (over age 65)	£50	£53
Intermediate (age 22-27)	£50	£53
Student (under age 22)	£37	£40

1. Subscriptions are revised annually 2. Individual Life membership £900.00

APPRENTICESHIP OPPORTUNITIES

In November, BAE Systems is holding a number of events where young people can come along and learn more about its different apprenticeship schemes.

There will be current and ex-apprentices on-hand to share their experiences and offer an insight into life as an apprentice and what it is really like working at BAE Systems.

Event details:

Blackburn Rovers Football Club Thursday 17 November 4.30pm – 8.00pm
 BAE Systems Brough Wednesday 23 November 6pm – 8pm
 Preston North End Football Club Monday 21 November 4.30pm – 8.00pm

BAE Systems Apprenticeship Website (Military Air & Information):

<http://www.baesystems.com/en/careers/careers-in-the-uk/apprenticeships/our-businesses/mai>

For up-to-date information on all our activities please visit our website at www.airleague.co.uk where you can register for changes to be sent to you by email as they are announced.

NEW MEMBERS

Individual Members:

Rayan Altowayan, Kim Amon, Lewis Anderson, Charlotte Baird, Hannah Benton, Andrew Coleman, Bernard Collie, Linus Fuge, Alex Gloster, George Hibberd, Archie Hilton-Bailey, Ranulph Hutchinson, Amelia Luddington, Kieran McCann, John McElhone, Hope Millar, Gordon Mortimer, Stelian Naftanaila, Thomas Pinketon, Joseph Potter, Anam Rauf, Matthew Temple, Thomas Timmons

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