



An Association for Retired Professional Engineers

NEWSLETTER

December 2009



Happy Christmas
and Best Wishes
for the New Year



PROGRAMME OF EVENTS 2010

Tuesday	12 January	Talk, CERN and the Large Hadron Collider, Field Place
Tuesday	19 January	14.00. Visit to Shoreham Power Station
Thursday	21 January	Coffee Morning, at Spotted Cow, Angmering
Thursday	28 January	Coffee Morning, Beach Hotel. Worthing
Tuesday	9 February	Talk, The Future of Coal Fired Power Stations, Field Place
Thursday	18 February	Coffee Morning, at Spotted Cow, Angmering
Tuesday	23 February	10.30 & 14.00. Visit, Southern Water, Waste Water Treatment Plant, Ford
Thursday	25 February	Coffee Morning, Beach Hotel. Worthing
Tuesday	9 March	Talk, Blue Phoenix 500- an Engineer's dilemma.
Thursday	18 March	12.00 for 12.30 pm. Northbrook Spring Lunch
Thursday	18 March	Coffee Morning, at Spotted Cow, Angmering
Tuesday	23 March	14.00, Visit to Alexander Dennis, Guildford
Thursday	25 March	Coffee Morning, Beach Hotel. Worthing
Tuesday	13 April	Talk, Bermondsey Waste Incinerator, Field Place

Thursday	15 April	Coffee Morning, at Spotted Cow, Angmering
Wednesday	21 April	14.00. Outing to Arundel Wildlife and Wetlands Centre
Thursday	29 April	Coffee Morning, Beach Hotel. Worthing
Tuesday	4 May	14.00. Outing to Leonardslee Lakes, Gardens and 'beyond the Doll's House
Thursday	20 May	Coffee Morning, at Spotted Cow, Angmering
Friday	21 May	14.00, Outing to Herstmonceux Castle and Gardens
Thursday	29 May	Coffee Morning, Beach Hotel. Worthing
Thursday	17 June	Coffee Morning, at Spotted Cow, Angmering
Wednesday	23 June	14.00. Outing to Amberley Working Museum
Thursday	24 June	Coffee Morning - venue to be announced.
Tuesday	6 July	(tbc) Visit to Ford or Hardham Water Treatment Plant
Thursday	15 July	Coffee Morning, at Spotted Cow, Angmering
Wednesday	28 July	14.00, Outing to Guilford Cathedral
Thursday	29 July	Coffee Morning - venue to be announced.
Thursday	19 August	Coffee Morning, at Spotted Cow, Angmering
Thursday	26 August	Coffee Morning, Beach Hotel.

All Talks and Meetings will commence at 2.30 pm and be held in the Chichester Room, Field Place, Worthing, unless another venue or time is indicated.

Timings for visits and outings will be as printed in the detailed description of the activity.

Coffee mornings commence at 10.30 a.m., except at The Beach, which is from 10.45 a.m

Website for the RCEA

For latest information and photographs, log into www.rceasussex.org.uk

Membership

Subscriptions Reminder 2009/2010

These were due on 1st October. If you have not done so already can you please send your cheque for £12 to the Hon. Ast. Treasurer,

J H Underwood, 168 Alinora Crescent, Goring by Sea, BN12 4HW

(Reply slip at end of newsletter.)

New Members

We welcome 9 new members to the Association this quarter. The most we have seen at any one time for some while.

New members should check the information published below for accuracy. This is the data, which will be published in the next Member's Handbook.

D. Bolton C.Eng., M.I.Mech.E., F.I.E.D.
19, Cissbury Avenue, Findon Valley, Worthing, BN14 0DU
Derek & Eunice 01903 872065
40-50 Draughtsman, 50-56 Aircraft designer, 56-61 designing aircraft engines,
61-65 research satellite communications, 65-86 design of parcel handling
systems
Interests Horology, Model Engineering

V. Brown C.Eng., BSc (Eng), F.I.E.E., F.I.R.S.E.
1 Cedar Close, Horsham, West Sussex, RH12 2BN
Vivian 01403254369
vivian.brown@btinternet.com
52-54 Engineering graduate, GEC Coventry, 54-56 National service RAF,
56-58 Signal engineer, British Rail, 58-89 Manager, Signal &
Telecommunications,
BR, 89-95 Consultant Transmark
Interests Gardening, Photography

R.H. Gillett C. Eng., M.I.C.E.
33 Mill Road Avenue, Angmering, West Sussex, BN16 4HR
Bob & Pauline 01903784509
bob.gillett@tiscali.co.uk
1959 Engineering assistant local government, 1964 Taylor Woodrow,
1978 Consultant in Canada, 1987 Marketing Manager, UK Contractors,
1993 Assistant Director I.C.E., 1995 self employed consultant,
2000-2009 Marketing Manager Hochtief
Interests Aviation, motoring, woodwork, current affairs, square dancing,
gardening

R. K. Goodsell C.Eng., I.E.T.
39 Priory Road, Hassocks, West Sussex, BN6 8PS
Keith & Sonia 01273844566
keith.goodsell@btopenworld.com
Apprenticed at Metropolitan Vickers, joined fathers company and on sale of
company started own business designing and manufacturing specialised audio
equipment for educational use.
Interests model engineering, 7mm scale railways, gardening, music, walking,
grand children, caravanning

H. Niven BSc(Eng), F.I.Mech.E., Member ASME, Member IDGTE
20, Ashurst Drive, Goring-by-Sea, West Sussex, BN12 4SW
Humphrey & Anne 01903240001
h.niven@ntlworld.com
1961-1977 Paxman Diesels, 1977-2003 Ricardo,
2003 onwards Self employed consultant
Interests DIY, Travel, Aircraft technology, engine history

D. Norley C. Eng., M.I.Mech.E., M.I.G.E.M.
21 Ravensbourne Avenue, Shoreham by Sea, West Sussex, BN43 6AA
David & Pat 01273461228
Transmission and gas supply engineer for British Gas,
General Manager, Transco (London & South East)
Interests DIY, Photography, Golf

P. J. Stocks C. Eng., Eur. Ing., M.I.Mech.E.
Squirrel Cottage, 5 Morris Way, West Chiltington, Pulborough, West
Sussex, RH20 2RX
Paul & Sonia 01798813676
paulstocksceng@aol.com
General Motors in both UK and USA, Bosch in South Wales, Daewoo in
Worthing, Consultant in test engineering services
Interests DIY, Walking, Skiing, Travel, Wining and Dining

D.B. Thomas C. Eng., BSc., M.I.E.T.
10 East Close, Middleton-on-Sea, BOGNOR REGIS, PO22 7RS
David & Patricia 01243586685
david_b.thomas@virgin.net
1954 student apprentice HM Dockyard, Devenport,
1965 GEC working on Polaris submarine, 1970 transferred to Portsmouth,
1972-1980 Manager spacecraft control systems, 1980-1990 divisional manager,
2000-2007 consultant on Immarsat 4 spacecraft
Interests DIY, Keeping fit, Gardening, Walking, Cycling, Photography

Mrs. P. Thomas M.I.E.T., M.A.A.T.
10 East Close, Middleton-on-Sea, BOGNOR REGIS, PO22 7RS
Patricia & David 01243586685
david_b.thomas@virgin.net
1960-1967 student at GEC, Stanmore,
1967-1972 design/development engineer at Plessey,
1976-1980 lab technician Petersfield school,
1985-2006 accounting technician Petersfield
Interests DIY, Keeping fit, Gardening, Reading, grandparenting

Existing members should also check that their particulars and especially their email addresses as published in the handbook are correct. Please let the membership Secretary (Malcolm Hinds) know of any discrepancies.

Coffee Mornings at the Beach Hotel

Just to remind members that we meet with (or without) partners on the last Thursday of each month in the elegant surroundings of the Beach Hotel for coffee and biscuits.

The morning lasts from around 10.45 to 12.00 and it is of course possible to stay for lunch if you so wish. Our next coffee morning is on Thursday 28th January 2010 when we would be pleased to see new and old members.

You will be made most welcome.

The Retired Chartered Engineers Association / Southern Retired Chartered Engineers

At our last AGM we debated the paper prepared by the Secretaries of our two organisations and it was agreed that it offered an opportunity to broaden the appeal of our meetings to the SRCE and provided the opportunity for our members to attend meetings of the SRCE.

The SCRE programme for 2010 is detailed below:

Thursday 23 March: visit to the Southern Water waste water treatment plant at Peel Common near Fareham

Tuesday 20 April: visit to the Whitchurch Silk Mill at Whitchurch, Hampshire

May: possible Salisbury theatre trip (details not yet available)

Tuesday 11 May: visit to Leonardslee lakes & gardens near Horsham

Thursday 10 June: visit to Coultershaw Beam Pump near Petworth

Thursday 15 July: visit to the Olympic Park under construction in east London

Thursday 5 August: trip to Sonning theatre, (near Reading)

August: possible trip on SS Shieldhall to view Bournemouth Air Show - event details not yet available

September: event yet to be decided

December: Salisbury theatre trip - details not yet available.

If you wish to attend any event please e-mail Roger Ball the Hon. Secretary who will send to you an Application Form (except in those cases where the details are not yet available), which contains full details of the event, plus the cost. . All visits normally include lunch.

Roger would prefer e-mail contact so that he can e-mail the forms, thus avoiding postage! Roger's email is rbconsult@clara.net

Ken Lane, Immediate Past President

We were informed of the sad news that Ken had passed away on the 6th December after a long illness. Ken, who was President until September this year, will be missed for all of his work on the Committee and for organising interesting visits and outings for members and guests. The Committee has sent a card expressing condolences on behalf of the Association, to Ann Marie his wife, and his family. A donation will also be made to a Cancer Research Charity from the Association.

Brief Detail – Talks, Outings and other activities Jan – Apr 2010

Talk:

Tuesday 12 January 14:30. CERN and the Large Hadron Collider by Steve Oliver RCEA.

Chichester Room, Field Place, The Boulevard, Worthing, BN13 1NP.

CERN, the European Laboratory for Particle Physics, straddles the French-Swiss border just west of the city of Geneva. Here the Worlds largest particle accelerators are housed in tunnels up to 27 km in circumference and 100m below the surface. A brief description of the history of CERN leading up to the latest accelerator, the Large Hadron Collider - LHC, which reproduces conditions existing at the creation of the Universe – the “Big Bang” 13.7 billion years ago, will be presented.

Visit

Tuesday, 19 January 14.00. Shoreham Power Station

This will be a “non-technical” visit to the gas-fired power station at Shoreham. (i.e. it is unlikely a technical member of the power station staff will accompany us and therefore some technical questions may have to go unanswered.) The visit will commence with a video presentation showing the site construction followed by a guided tour of the plant and control room. Part of this tour will involve walking around the outside plant areas and therefore you should wear stout shoes and suitable outdoor clothing. Safety hats etc. will be issued to all visitors.

This visit is limited to a party of no more than 20. Can you please complete the reply slip if you wish to attend. We will operate a “first come, first booked” list for all replies and a waiting list if an excess number apply. You will be informed if you are on this list, in all other cases you can assume you have been allocated the places you have applied for.

To get to the Power Station from Worthing it is necessary to go along the A259 towards Brighton from Shoreham until you reach the end of the Shoreham Dock area (almost the start of Hove seafront), turn right at the traffic lights and then follow the sea front road back towards Shoreham. Entrance to the Power Station site is through the gate for the Southern Water, water treatment plant. We will meet at the Gatehouse at 2.00pm, before being met and taken to the Training Room.

Please return reply slip to Brian Buckroyd 01903 784926 or email brianbuckroyd@hotmail.com

Talk:

Tuesday 9 February 14:30. The Future of Coal Fired Power Stations.

Chichester Room, Field Place, The Boulevard, Worthing, BN13 1NP

Visit:

Tuesday 23 February 10.30 & 14.00. Southern Water, Waste Water Treatment Plant, Ford

The visit day will give members a choice of two visit times: The first will be at 10.30 and the second at 14.00.

Members should indicate which time they would prefer on the reply slip which needs to be returned to Colin Piling before the 17th February. There is a limit of 12 per visit.

The visits will be a part of the Southern Water Customer Forum and will take around two hours. There will be a presentation about the services Southern Water provide and a tour of the site by the Site Manager who will explain the wastewater treatment process. There will be refreshments provided.

The site is located on the Ford Road at the entrance to Ford Aerodrome. As you approach Ford Aerodrome there is a full size jet fighter on a post. Just after you turn into the aerodrome the site is on the right. You will need to press the buzzer at the main entrance for entry and the offices are at the far end of the access road, sign posted "admin office".

The address is: **Ford Wastewater Treatment Works** Ford Aerodrome, Off Ford Road
Ford, Arundel, West Sussex, **BN18 0HY**

Talk:

Tuesday 9 March 14:30 Blue Phoenix 500- an Engineer's dilemma by Ken Wheeler RCEA.

Chichester Room, Field Place, The Boulevard, Worthing, BN13 1NP

A sequel to the talk of a few years ago about Donald Campbell's Bluebird K7, this time relating to the conflicting criteria affecting the design of a new craft capable of speeds well in excess of the current record of 317 mph and where this time air density compression becomes a consideration. New solutions are proposed using engineering knowledge not available to Norris Brothers in 1950 when K7 was designed.

Spring Lunch

Thursday 18th March, 12.00 for 12.30 pm Northbrook College, Worthing in the Arundel Room Training Restaurant.

The cost this year for a three-course lunch and coffee will be £ **11.00**. Our number will be limited to 40 because of their space consideration. The price this year includes a non-refundable deposit of £5 per head for cancellations after the 20th February.

If more than 40 members and guests apply, we will prepare a "waiting list"; you will be informed if you are on this list. In all other cases you can assume you have been allocated the places you have applied for.

*Please return the reply slip at the end of this newsletter no later than **14th February***

Visit:

Guildford, Tuesday 23 March 14.00 Visit to Alexander Dennis

Alexander Dennis Limited (ADL) is the UK's leading bus and coach manufacturer, employing around 2,000 people at facilities in the UK, continental Asia and North America.

The fastest growing bus and coachbuilder in Western Europe, ADL encompasses three famous and successful marques – Alexander, Dennis and Plaxton. ADL produces a wide range of innovative and fuel efficient, low floor single and double deck buses, plus a full portfolio of coaches, welfare and mini vehicles.

Our visit will commence with an introduction and background to Alexander Dennis, followed by an overview of the products with an emphasis on the hybrid bus technology. We will complete our visit with a tour of the works.

We will meet at reception at 14.00

Directions from the A3

Address: Chassis Group, Dennis Way, Guildford, GU1 1AF

Leave the A3 at the Guildford Junction and take the A320 towards Woking. Alexander Dennis is just a couple of minutes from this Junction, in Slyfield Industrial Estate. Just as you come off the junction and drive a few hundred yards, then you will come to a roundabout. Directly after the roundabout there is a set of traffic lights at the entrance to Slyfield Industrial Estate. Stay in the right hand lane to turn right into the estate. Once in the estate, take the first left into Westfield Road, directly after the Vauxhall garage, but before the Volkswagen garage. After the road bends round to the right, take the next left at the Audi garage into North Moors Road, then next left into Dennis Way. You will see the car park on your right hand side as you drive in. Reception is directly opposite the car park.

Reply slips to Colin Pilling with a closing date of Friday 19th March.

Talk:

Worthing, Tuesday 13 April 14:30. Bermondsey Waste Incinerator, by Paul Stephenson C.Eng.

Chichester Room, Field Place, The Boulevard, Worthing, BN13 1NP

Paul was Project Director for the power generating waste incinerator constructed on a redundant greyhound racing track in urban South London where environmental issues had high precedence. He will describe the construction and discuss the economics of Waste-to-Energy plants, concluding with a video made by David Bellamy dealing with the environmental credentials of the plant.

Visit;

Worthing Wednesday 21 April 14.00. Arundel Wildlife and Wetlands Centre

Contact: Glyn Mathias 01903 859191, or email glyn.mathias@btinternet.com

Arundel Wetland Centre is set in ancient woodlands in the middle of the South Downs; adjacent to the River Arun; overlooked by the historic Arundel Castle skyline, the Centre also attracts many wild birds to the lakes, reed beds and woodland areas on the site. There are 26 hectares of naturalised landscapes and wetland habitats holding many hundreds of exotic wildfowl from around the world. The Centre offers beautiful walks around the reserve, a visitor centre with restaurant, gift shop and viewing gallery with panoramic windows and bird hides which offer plenty of opportunities to observe the wildlife.

Arundel Wetland Centre is a beautiful place to visit all year round with the landscape and wildlife changing constantly with the seasons. Spring is perfect for wild flowers and songbirds.

Free Safaris on quiet electric boats are offered every day, weather permitting. Gliding along the waterways of the new Wetlands Discovery area you can discover the joys of seeing wild flora and fauna in their natural environment.

The cost of the visit is £7.00 + £1.50 for the guide.

Unfortunately, at the present time they are not able to confirm the availability of a guide for the day / time we wish to visit. Can you please assume one will be provided and send a cheque with your reply slip for £8.50 per person. In the event that we cannot secure the services of a guide £1.50 per person will be refunded on the day.

An e-mail circulation plus other announcements will be made nearer the time to confirm a guide will or will not accompany us, so that anyone who has booked early will have the opportunity to cancel for a full refund.

The Arundel Wetland Centre is located at Mill Road, Arundel West Sussex BN18 9PB

Please complete and return the reply slip at the end of the Newsletter before the 28th March 2010

REPORTS

Outing:

Wednesday 16th September; Skittles and Buffet Lunch, at The Bull Inn, Henfield.

Eighteen members and guests enjoyed a very pleasant afternoon, taking the sun and having their lunch on the patio and inside the skittles room, interspersed with five skittles matches. The buffet meal provided was principally piazza and salad and was more than adequate for everyone to enjoy with their drinks. The two teams were evenly matched and after the five games the winning team only held a lead of a few points.



Talk:

Tuesday 22nd September - Waste Disposal in West Sussex and the proposed Biomass Facility at Horsham

Phill Russell, Head of Wastes Management at WSCC was unable to give the talk but arranged for Anna Parry and Dr Keith Brown to attend in his place.

Anna started by explaining the waste management situation in West Sussex and the changes / improvements that have taken place over the last few years including the building of the Materials Recycling Facility at Ford which will enable glass to be included with other recyclables in the recycling bin.

Keith then give a run down on the available technologies for waste management and went on to deal in greater detail with the type of process proposed for the WSCC facility to be built at Horsham.

It was an interesting and informative talk and Anna and Keith were able to answer the varied questions posed by our members.

Visit: Wednesday 6 October at 2 pm – The WSCC Materials Recycling Facility at Ford

Attendance was restricted to 14 members, so a number of members were unable to attend. The facility had only been open a few months and we were amongst the first public visitors. The visit started in the education centre with a talk on recycling. This was both interesting and informative and resulted in lots of questions, most of them being answered by our enthusiastic and knowledgeable guide (answers to some were emailed later). We then put on our safety hats with inbuilt earphones, which were connected to mobile radios so that we could hear our guide, and then went into the facility and made our way to the observation platform.

The facility is housed in a large unit and comprises a number of conveyor belts passing through special units that are able to identify differing types of material and then segregate them by guiding them to other belts or dropping them through “trap doors” etc. Some of these machines are very sophisticated being able to differentiate between different types of plastic using reflected light. There is still human intervention to remove large pieces of cardboard etc. At the moment the facility is not up to full working capacity because recycling from other local councils (e.g. Worthing) has still to be transferred to the MRF. It is envisaged that two-shift working may be necessary as the quantity of recycling increases.

Unfortunately, the machinery was not working as normal because additional dust extraction equipment was being fitted, usually out of hours, but they had decided to finish the shift early and had not told our guide. However, overall it was an interesting visit despite the early shutdown.

Talk:

Tuesday 13th October. St Pancras Station by Gwilym Roberts – Member

After describing the background to the Derby-based Midland Railways establishment in 1844 Gwilym explained why it decided to construct its own line into London (as well as extending its network to Carlisle and Leeds) and the problems associated with the construction of the new terminus at St Pancras, in particular how Regent's Canal was to be crossed, the deep excavations needed through St Pancras Churchyard and the exhumation and re-interment of thousands of corpses.

A comparison of the spans of a number of major early stations was then given prior to a description of the design philosophy and constructional details of the train shed, (which for a quarter of a century was the world's largest single span roof), and of the adjacent Midland Grand Hotel, both of which were conceived to the highest standards so as to provide effective competition with other lines running to the north.

The presentation concluded with a description of the station's increasing dereliction during the 20th century, an account of the actions taken to prevent its destruction, why it was eventually chosen as Eurostar's London terminal, and a summary of the works needed to adapt these two Grade 1 listed mid-Victorian masterpieces into 21st century state of the art structures.

Cooch Memorial Lecture

Tuesday 10th November 2009 The Digital Camera – Megapixel Marvels by Dr Graeme Awcock B Sc PhD. C.Eng, MIET, Brighton University.

An excellent attendance including a number of visitors enjoyed a very well presented lecture on the Digital Camera. Dr Awcock outlined the history of the camera and how it has in a short space of time virtually taken over professional, serious amateur and popular photography from film cameras. He then went on to describe the workings of the digital camera from the engineering viewpoint, operation and use.

He concluded with some advice on the use of the camera for amateurs and some cautionary advice about being dazzled by makers of cameras offering huge pixel capability, which was not necessarily an advantage. As with so many of our Cooch Lectures, a most worthwhile event.

Visit:

Tuesday 25th November 2009: EADS Astrium, Portsmouth

Twenty-Two members attended this afternoon's visit to EADS Astrium. The visit was ably arranged by Mrs Sherman O'Leary EADS UK PR and Sponsorship Manager. The visit took the format of a presentation by Mr Alistair Scott which covered the formation of the current company, from its starting point through its many iterations, including Marconi Space and Defence Company, Matra Marconi and many more. He also looked at "Space: Past, Present and Future"

The current space industry in the UK employs around 70,000 people with a budget of around £70 Billion – not an inconsiderable amount!! Astrium has played a major role in the development of the UK's space capabilities since the 60s. Its 1000 staff spread over several sites is involved in the design, build and test of advanced payloads for mobile and military communications satellites world leading Earth observation payloads with advanced spaceborne radars sensors and scientific instruments such as the microwave humidity sounder payloads for the Galileo navigation system satellites.

The main areas covered by the 'space technology business' are:

- Access to Space: as a contractor to the European Space Agency (ESA) EADS Astrium is heavily involved in the International Space Station.
- Defence and Security Systems: these include Earth monitoring and secure communication systems. Skynet 5 is the UK military satellite communication system.
- Everyday Benefits (Commercial Systems): these include telecommunications, television, navigations systems, and weather monitoring/forecasting. EADS also manufactures satellites and support systems for foreign governments. It is hoped that there will soon be broadband internet from space!!
- Environment: Monitoring/Protecting it from pollution, natural disasters, climate change and all other factors threatening its environment and bio-diversity
- Space Science: Expanding our understanding of our solar system and the origins of the universe. In this area EADS Astrium is a main supplier to the European Space Agency (ESA).

The main areas of development mentioned were:

- Galileo: the new European global satellite navigation system. This is a series of around 27 satellites of which the prototypes and the first two production models have been manufactured. It is planned that the system will have a resolution on the ground of around one metre.
- Bepi-Colombo: soon to be on its way to explore Mercury.
- LISA Pathfinder: to open the door on the study of gravitational waves predicted by Albert Einstein.
- Gaia: to create a 3D map of the Milky Way.
- Mars Rover: Due to take off on a Ariane 5, sometime in the next 10 years, on a mission to look for signs of past or present life on Mars. The Rover will carry the Pasteur payload packed with a wide variety of scientific instruments and tools for collecting and analysing samples of Martian soil.
- Rosetta: Launched in 2004 the space probe Rosetta will rendezvous with Comet 67P/Churyumov-Gerosimenko in 2014 over 100million km from the sun. A lander using a drill will take samples of the comets soil to a depth of about 20cm and analyse it.

- James Webb Space Telescope: The Hubble Telescope replacement. Astrium is developing the Near Infrared Spectrograph (NR Spec). This will be capable of detecting the faintest radiation from the furthest galaxies in the universe.

Following the introductory presentation we split into two groups to tour the following areas: Triton Range; Assembly Integration and Test (AIT); Vibration/Shock Test; and Manufacturing. (Owing to clean room restrictions AIT and Manufacturing was viewed from viewing galleries). As you can imagine there were many, many questions asked. I was impressed with the professionalism and the enthusiasm of the people we met on the visit.

Triton Range: The Triton Range is basically a very large Anechoic Chamber capable of taking complete satellites. It is used for testing the multitude of antennas and associated feed systems, to ensure that there is no mutual interference and all operate within specification. One of the main antenna parameters measured was drift (of the horizontal and vertical polar characteristics). Excessive drift would mean that the satellite would have to be manoeuvred to align it with the transmitting/receiving station. A waste of fuel resulting in a reduced satellite life

AIT: This was a very large environmentally controlled room, which provided services and facilities for the Assembly Integration and Test of satellite components, instruments, modules and systems. A communication satellite was being assembled and members were able to see the main 'walls' on to which many electronic modules were installed. As satellites normally have a 10 to 15 year design lifespan, testing took up the majority of the time during AIT.

Vibration/Shock Test: This was conducted in two dedicated rooms. Shock testing is conducted to simulate mechanical loads during transportation and launch. Testing is conducted by mounting the component to be tested on a flat aluminium plate which representing the satellite/other mounting structure and dropping a weight down a plastic pipe set a precise distance from the item. All very basic!! The clever bit is in the analysis of the data from the accelerators, which measure the shock levels.

Vibration testing is conducted using an acoustic vibrator (a very large loudspeaker!!) w, which vibrated a bed floating on oil. Three axis testing was conducted, one axis at a time.

Random spectrum, sinusoidal or a combination of both is conducted. During the visit a unit that was to be rack mounted in a truck was being subjected to random transport vibration testing. Again the clever bit is in the data analysis.

Manufacturing: Manufacturing was carried out in two clean rooms. The smaller and cleanest room (Class 100) is used for manufacturing RF and electrical components and sub-assemblies for the various satellite and support equipment. It had an impressive array of equipment including one which soldered gold wire thinner than a human hair to components.

The larger clean room (Class 100,000) is used for assembly and testing of larger assemblies. These included transmitters; receivers, antenna switching devices; up/down links; analogue and digital modules, multi-channel switches etc. It also had a wide range of ATE. Because of the high cost involved, the facility runs on a 24/7 basis. Around the viewing area (within the clean room) were samples of the components and modules that were/had been manufactured, all of them electronic engineering cutting edge items.

The visit concluded with a question and answer session. Overall a fascinating, and to my mind, one of the best RCEA visits I have been on (among many notable visits I might add!!). The quality and reliability of satellites and support equipment has to be second to none and it was gratifying to be told that Astrium have been approved by NASA for the manufacture of some items. Not an inconsiderable feat, knowing the restrictions that NASA place on its sub-contractors!! It is good to know that in one area the UK are leading the field in this particular area of engineering.

Randall Keir

Wednesday 16th December; Christmas Lunch at the Beach Hotel, Worthing

50 Members and their guests attended the Christmas lunch this year at the Beach Hotel in Worthing.

As, in the last two or three years this is has become one of the most popular events in our calendar, an occasion when our members and guests can meet to chat and enjoy a pleasant lunch in a more informal way than it used to be when the association held Annual Dinners.

Everyone present enjoyed the meal, the President's wife was presented with a bottle of champagne and our President gave a short address.



REMINDER:

RCEA members are covered by a Members' Club Protection Policy whilst engaged in Association activities This cover does not extend to non – members and guests.

SUBSCRIPTION REMINDER: (2009/2010)

To: Treasurer, J H Underwood, 168 Alinora Crescent, Goring by Sea, BN12 4HW

Full name:.....(Block capitals)

Address.....

.....

.....

I enclose a cheque made payable to RCEA for £.....(£12.00)

Please return this reply slip as soon as possible if you have not already paid (Separate cheque please)

.....

REPLY SLIP 1:

To Brian Buckroyd, 6 Fosters Close, East Preston, Littlehampton BN16 2TL
Tel 01903 784926

I wish to participate in the visit to Shoreham Power Station, 2.00pm at the gatehouse Tuesday 19 January

Full Name(Block capitals)

Address

.....

.....

Phone No.....

Applications by 1st January 2010 (Limited Number of places still available)

.....

REPLY SLIP 2

To: Colin Pilling, 84 Marine Crescent, Goring-by-Sea, BN12 4JH Tel 01903 522356

Please reserve.....places for me for one of the two visits on Tuesday 23 February 10.30 & 14.00. to Southern Water, Waste Water Treatment Plant, Ford.

NAME(Block capitals) Phone No.....

ADDRESS.....

.....

.....

Visit 1 10.30 am There is a limit of 12 for this visit **Visit 2** 2.00 pm. There is a limit of 12 for this visit

Please indicate your first and second choice of time

Applications by 17th February 2010

.....

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REPLY SLIP 3:

To **Jim Underwood, 168 Alinora Crescent, Goring by Sea, BN12 4HW**
Tel 01903 709033 (jimunderwood9@hotmail.com)

I/We wish to attend the Lunch at Northbrook College, Thursday the 5th March

Full name:.....(Block capitals)

Address.....

.....

.....

Phone No..... Number of Persons.....

Name of guest/s.....

I enclose a cheque made payable to RCEA for £.....(**£11.00 per person**)
£5.00 non-returnable after 20th February.

Please return this reply slip by 14th February 2010

.....

REPLY SLIP 4:

To **Colin Pilling, 84 Marine Crescent, Goring by Sea. BN12 4JH**
Tel: 01903 522356, or at colinpilling@ntlworld.com

I/We wish to attend the Visit to **Alexander Dennis, Guildford, Tuesday 23 March at 14.00**

Full name:.....(Block capitals)

Address.....

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.....

Phone No..... Name of Guest.....

Applications please by Friday 19th March 2010

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REPLY SLIP 5 :

To: **Glyn Mathias, 16 Tamarisk Way, East Preston, Littlehampton, BN16 2TL,**
(Telephone 01903 859191). email glyn.mathias@btinternet.com

I/We wish to attend the Visit to the Arundel Wildlife and Wetlands Centre, 2.00 pm on Wednesday the 21st April

Full name:.....(Block capitals)

Address.....

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Phone No..... Name of Guest.....

Please return this reply slip by 28th March 2010 with a cheque made payable to RCEA for £.....(£8.50 per person)

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