IN MEMORY OF
09-11-01

WE PRAY FOR HOPE, UNITY, HEALING, AND UNDERSTANDING!

NOTES FROM THE PUBLISHER:

- Please forward this newsletter to individuals (youth & adult) and organizations who may enjoy this “AEROSPACE – YOUR FUTURE” newsletter.

The latest editions of the following publications are available for viewing on the EAA Chapter 44 website shown above:

- AEROSPACE INNOVATION
- AEROSPACE INNOVATION
- AEROSPACE Propulsion Innovation
- AEROSPACE Career Links
- Flying Cars - Roadable Airplanes

Thank you EAA Chapter 44 for posting these publications.

AEROSPACE – THE FUTURE

Please forward additional active “R & D” websites

**RESEARCH AND DEVELOPMENT**

ACTIVE PROJECTS

RED BULL STRATOS:
http://www.redbullstratos.com
Supported by a team of experts Felix Baumgartner plans to ascend to 120,000 feet in a stratospheric balloon and make a freefall jump rushing toward earth at supersonic speeds before parachuting to the ground.

SOLAR IMPULSE:
http://www.solarimpulse.com
http://www.youtube.com/watch?v=OJM2DWkgP08
Solar Impulse is a demonstration of what can be achieved with today’s technologies. In July 2010, HB-SIA became the first solar-powered airplane in history capable of flying through a complete daylight cycle, thereby establishing 3 World Records.

SCALE COMPOSITES – PROJECTS - (HELP WANTED)
http://www.scaled.com/projects
Scaled’s aerodynamic analysis and design capability, when combined with our proof-of-concept building experience, provides our customers with the most cost-effective and accurate development data available.

DIGITAL AIRLINE
Leverage, connect and integrate.

Integrated Services
Boeing believes the future of the aviation industry lies in "the digital airline." To succeed in the marketplace, airlines and their engineering and IT teams must take advantage of the increasing amount of data coming off of airplanes, using advanced analytics and airplane technology to take operational efficiency to the next level. The key to the digital airline is delivering secure, detailed operational and maintenance information to the people who need it most, when they need it most. That means that engineering will share data with IT, but also with the finance, accounting, operational and executive functions. The end result will be airlines that can make the most informed, best possible decisions to maximize their efficiency, profitability and environmental performance.

THE MARTIN JETPACK
http://martinjetpack.com
Assembly of Prototype 12 started...
August 28, 2012
The engine for the new prototype has been assembled, while the pieces of the first duct and the airframe are now going together. The second duct, and other key components, are in manufacture and are due to be ready for assembly soon.

James, who is our current remote control pilot, is over half way through his microlight training in preparation for being one of the two test pilots for manned test flying of P12 later this year.
HERE COMES THE DRONE AGE

Sep 11, 2012, Asher Moses, Technology Editor
"We're entering the Drone Age." So says Chris Anderson, editor-in-chief of Wired magazine and a man who fancies himself as the Steve Jobs of the drones. The gap between the hobby aircraft and the small-sized commercial [drones] ... is getting smaller and smaller.

Australia entered the Drone Age in 2002, when it became the first country to introduce legislation covering unmanned aerial vehicles, leading the world in creating rules governing civilian use of the technology.

A view of the future ... researcher from the University of Tasmania trialling a drone. Drones have since been employed by real estate agents, miners, marketers, environmental surveyors, even lifeguards.

HOW PRIVATE SPACESHIPS WILL INSPIRE FUTURE GENERATIONS: Q&A WITH PAUL KOSTEK
10 Sep 2012, Denise Chow, SPACE.com Staff Writer

NASA Administrator Charles Bolden (left) and SpaceX CEO Elon Musk view the historic Dragon capsule that returned to Earth on May 31 following the first successful mission by a private company to carry supplies to the International Space Station. This picture was taken June 13, 2012 at a SpaceX facility in McGregor, Texas.

As a new fleet of private spaceships prepare to take flight by 2015, the age of commercial spaceflight may be just around the corner.

With the idea of space vacations no longer the stuff of science fiction, the rise of commercial spaceflight could be a crucial game changer for the aerospace industry. NASA is expecting to purchase seats aboard private space vehicles to ferry astronauts to and from the International Space Station. This type of high-profile paradigm shift may be just the kind of excitement that is needed to inspire the next generation of engineers, scientists and space explorers, according to Paul Kostek, former president U.S. division of the Institute for Electrical and Electronics Engineers (IEEE-USA), a professional society dedicated to furthering engineering and technological innovation.

EUROPEAN INDUSTRY DEVELOPS SPACE SAFETY RADAR System To Be Designed For Early Detection Of Space Debris
Thu, Sep 13, 2012
The European Space Agency (ESA) is developing a new radar as part of the Agency’s Space Situational Awareness program. The radar will test future debris monitoring techniques, helping European satellite operators avoid space hazards and increase safety in Earth orbit. ESA and France’s ONERA – Office National d’Etudes et Recherches Aérospatiales – research center have signed a $5.1 million contract that will see the French organization and five industrial partners in France, Spain and Switzerland design a test surveillance radar and develop a demonstrator model. Work begins this month.

ELECTRIC-POWERED FLYVOLT G 208 WINS BRONZE A‘ DESIGN AWARD
Thu, Sep 13, 2012
Designer Views Aircraft With Twin Pusher Motors And Side-By-Side Seating As A Trainer
An international panel of judges has selected the design project Flyvolt G 208 by Bruno Giardino to receive the prestigious Bronze A‘ Design Award in the Aerospace and Aircraft Design category.

Bruno Giardino, the project leader of the Flyvolt G 208 says that the electrically-powered aircraft would offer comfortable flight due to the low noise levels and smooth-operating motors, and have the added benefit of instantaneous power availability. "This kind of aircraft is ideally suited for flying schools – its similarity to a motor glider makes it complementary to gliding itself," he said. The low weight and small size of the motors has allowed their location on the extremities of the box-tail, ensuring free and undisturbed airflow around the wings and fuselage and potentially improving the overall aerodynamic performance.
LUFTHANSA SIGNS FOR FUTURE BIOFUEL
September 13, 2012, John Morris

Lufthansa has signed an MoU with Solena Fuels Corp. of Washington, D.C., to work towards “a long-term, bankable offtake agreement” for bio-synthetic paraffin kerosene to use as a certified, drop-in fuel for commercial flights. Solena will locate its first sustainable biofuel facility in Germany at Schwet/Oder, on the Polish border. The refinery will use the Fischer-Tropsch process to convert 520,000 tons a year of waste biomass that would otherwise have gone to landfills or incinerators into synthetic jet and diesel biofuels, and electricity.

SOLENA FUELS: http://www.solenafuels.com

BOEING UNVEILS PROTOTYPE ECODEMONSTRATOR AIRCRAFT WITH FUEL-EFFICIENT TECHNOLOGIES
19 September 2012

"One technology used is a regenerative fuel cell that uses the excess energy produced when the aeroplane is reaching the right altitude, to break down ionised water into oxygen and hydrogen, which can be stored for future use to power the systems when there is less fuel."

FIRST OF THREE MILITARY HYBRID AIRSHIPS DELIVERED AND FLYING
September 21, 2012

Hybrid Air Vehicles Limited and Northrop Grumman Corporation (NYSE:NOC) announce the successful completion of the first flight of the U.S. Army's Long Endurance Multi-Intelligence Vehicle (LEMV). They have designed a 400ft (122m) long "lighter-than-air" hybrid vehicle for the US Army, in a contract worth half a billion pounds. The LEMV, a first-of-its-kind airship, took to the sky on the 7th August 2012 at 6:49 p.m. Eastern Time and flew for more than 90 minutes over Lakehurst Naval Air Station.

VIDEO: SPACE FENCE WATCHING OVER US
http://www.aerospace-technology.com/videos/1861644308001.html

THE ENGINEER Q&A: SABRE
http://www.theengineer.co.uk/news/the-engineer-qa-sabre/1014054.article#ixzz2fonCBYe
27 September 2012

This is your chance to ask the team behind one of the UK’s most exciting engineering projects, Skylon, about the technology behind its revolutionary air-breathing rocket engine, SABRE.

One of the UK’s most exciting engineering projects, the effort to develop and build Skylon, a single-stage-to-orbit spacecraft, has captured the imaginations of people both inside and outside the sector.

SKYLON:

The team behind Skylon, at Culham-based Reaction Engines, has agreed to answer questions from readers of The Engineer about the propulsion system that will send Skylon into space.

REACTION ENGINES: http://www.reactionengines.co.uk/

DUTCH GOVERNMENT PREPARING FOR THE PAL-V FLYING CAR
YOUTUBE: http://www.youtube.com/watch?v=F_2jom1iyXg&feature=youtu-be

END
CLOSING IN ON AFFORDABLE 50 PERCENT CONVERSION EFFICIENCY IN SIDE BY SIDE CONCENTRATED SOLAR
September 02, 2012

The most promising effort to create such superefficient photovoltaics (solar power) began in 2005, when Doug Kirkpatrick, a veteran of the optics industry, kick-started the Very High Efficiency Solar Cell (VHESC) program for the U.S. Defense Advanced Research Projects Agency (DARPA). He wanted a way to build modules from solar cells that would convert a full 50 percent of the solar energy they receive into direct current. That's a jaw-dropping number when you consider that in 2005 the best laboratory devices were still shy of 40 percent efficiency and were improving by less than one percentage point per year.

NANO MACHINE SHOP COULD LEAD TO REVOLUTIONARY TINY STRUCTURES
http://www.theengineer.co.uk/production-engineering/news/nano-machine-shop-could-lead-to-revolutionary-tiny-structures/1013725.article
3 September 2012

Just a few millimeters in diameter, the new ink-based super capacitor outdoes the performance of other carbon fiber-based devices, and can hold up to 10 times more charge. Researchers from Peking University in Beijing, China, built the device by coating two long thin carbon fibers with the ink, then wrapping them in a flexible plastic casing, filled with electrolyte.

According to a statement, the structures might be tuned for applications ranging from high-speed electronics to solar cells and may have greater strength and unusual traits such as ultra-high magnetism and plasmonic resonance, which could lead to improved optics, computers and electronics.

The researchers used their technique to stamp nano- and micro-gears, form circular shapes out of graphene and change the shape of silver nanowires, said Gary Cheng, an associate professor of industrial engineering at Purdue University.

Read more: http://www.theengineer.co.uk/production-engineering/news/nano-machine-shop-could-lead-to-revolutionary-tiny-structures/1013725.article#ixzz25P0edi4x

INK-BASED SUPER CAPACITOR HOLDS TEN TIMES MORE CHARGE THAN OTHER CARBON FIBER DEVICES
September 03, 2012

New Scientist - Standard pen ink is the surprise component in a flexible carbon fibre supercapacitor which can be bent in a full circle with barely any loss of performance.
**FUTURE SPACECRAFT COULD PROTECT CREWS WITH WALLS MADE OF WATER**
Sep 05, 2012, Rebecca Boyle

Walls of water could protect astronauts from radiation while recycling their bodily waste and purifying the air, under a new NASA concept. The “Water Walls” design takes a page from mother nature and uses water for passive protection.

**BRAIN-CONTROLLED DRONE: IT’S JUST WHAT YOU THINK**
ZHEJIANG UNIVERSITY, CHINA

A person with limited mobility controls the flight of a quadcopter drone with his thoughts. A quadcopter drone controlled by thought commands has taken to the skies at Zhejiang University in China. The prototype, called FlyingBuddy2, showcases the future of hands-free interaction that could allow people to pilot everything from remote-controlled toys to fighter jets with their brains.

To work, the pilot wears an emotiv electroencephalography (EEG) headset that interprets brain activity as commands that are routed to a laptop via Bluetooth and then to the drone over Wi-Fi.

**BRILLOUIN ENERGY OF BERKELEY, CALIFORNIA HAS BEEN GRANTED A PATENT FOR THEIR HOT-WATER BOILER TECHNOLOGY IN CHINA.**

September 5, 2012 / Ruby Carat/Business and Economics

Patents had been submitted in countries around the world with Japan “not rejecting” the patent and “some back and forth” on the patent in the European Union, but as with virtually all submissions referencing this new energy technology in North America, the United States Patent and Trademark Office (USPTO) rejected the application. Cold Fusion Now’s David J. French reviewed the rejection in this article from last May.

Further, though no product is currently slated for public release and the company is still prototyping their commercial design, an Original Equipment Manufacturing (OEM) company has contacted Brillouin with interest in licensing the technology.

**BROADCOM CHIEF TECHNOLOGIST PREDICTS 1 GBPS WIRELESS IN 2027 WHILE SOUTH KOREA ROLLS OUT 100 MBPS WIRELESS IN 2013**

September 07, 2012

One of several predictions by Broadcom chief technologist Henry Samueli is that by 2027, mobile devices will sport all-digital radios and Gbit/second cellular modems powered by 16-core apps processors running at 5 GHz. This prediction seems to be way too conservative.

**AIR TRAVEL OF THE FUTURE – AIRCRAFT WITH NO LEADING-EDGE SLOTS WILL BE QUIETER AND MORE ENVIRONMENT-FRIENDLY**

07 September 2012, DLR

Every year, there is a six percent increase in the volume of air traffic. To make air travel more environment-friendly and quieter, researchers at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR), together with partners Airbus, EADS Innovation Works and Cassidian Air Systems, have been carrying out research to reduce the aerodynamic drag of aircraft and have developed an alternative to the traditional leading-
edge slat. A morphing leading edge is expected to replace slats to create an innovative high-lift system. This construction significantly reduces drag and noise during landing. Tests were carried out between 27 August and 7 September in one of Europe’s largest wind tunnels at the Russian Central Aerohydrodynamics Institute’s (TsAGI) Zhukovsky research facility south of Moscow.

**BRAYTON CYCLE SUPERCritical TURBINE**

September 10, 2012

*Sandia National Laboratories is seeking an industry partner to market a turbine system that could substantially improve energy efficiency in small modular nuclear reactors.*

The system uses carbon dioxide in a closed-loop “Brayton-cycle” turbine to crank up electric conversion from heat, said Gary Rochau, manager of the advanced nuclear concepts group at Sandia’s Nuclear Energy and Fuel Cycle Technologies Center.

A supercritical CO2 Brayton-cycle system can reach 50 percent conversion efficiency. Typically, you only get 30 percent conversion with an [air-based] steam engine. The system is much less expensive to build because it’s very compact, Rochau said. Given its size, it can’t be used in large power plants like coal-fired generators. But it’s well-suited for tiny plants, such as small modular nuclear reactors.

**NORWAY RESEARCHERS GROW SEMICONDUCTORS ON GRAPHENE**

http://www.theengineer.co.uk/design-engineering/news/norway-researchers-grow-semiconductors-on-graphene/1013828.article#ixzz266CheZFa

10 September 2012

Researchers at the Norwegian University of Science and Technology (NTNU) have patented and are commercializing gallium arsenide (GaAs) nanowires grown on graphene.

According to NTNU, semiconductors grown on graphene are expected to become the basis for new types of device systems, and could fundamentally change the semiconductor industry.

**HAROLD WHITE WARP FIELD MECHANICS UPDATE**

September 10, 2012

Space Warp equations are being tested using an instrument called the White-Juday Warp Field Interferometer. At Johnson Space Center, Eagleworks has initiated an interferometer test bed that will try to generate and detect a microscopic instance of a little warp bubble. Although this is just a tiny instance of the phenomena, it will be existence proof for the idea of perturbing space time—a “Chicago pile” moment, as it were. Recall that December of 1942 saw the first demonstration of a controlled nuclear reaction that generated a whopping half watt. This existence proof was followed by the activation of a ~ four megawatt reactor in November of 1943. Existence proof for the practical application of a scientific idea can be a tipping point for technology development.

**A NEW APPROACH FOR ONBOARD AIRCRAFT POWER IS EVALUATED BY AIRBUS AND PARTNERS**


12 September 2012*Feature story*

Airbus’ pursuit of new, more efficient on-board power sources for its aircraft is being highlighted by the display of a Multifunctional Fuel Cell (MFFC) system concept at the ILA Berlin Air Show.

Through a partnership with the DLR German Aerospace Centre and Parker Aerospace, this joint evaluation is studying the MFFC’s use instead of today’s gas turbine-based auxiliary power units.
NEW WOOD PULP CONCOCTION STRONGER THAN KEVLAR, CARBON FIBER
Sep 13, 2012, Alexander George

A Transmission electron microscope took this micrograph of electrospun poly (methyl methacrylate) fibers with 17 weight percent cellulose nanocrystals. Photo: Department of Defense

The US Forest Service has opened a $1.7 million plant that will produce cellulose nanocrystals (CNC) from wood by-products, like wood chips and sawdust. The end result is stronger than Kevlar or carbon fiber, with similar low-weight advantages. CNC is also transparent, making it an alternative to ballistic glass.

NASA TURNS TO 3D PRINTING FOR SELF-BUILDING SPACECRAFT
13 September 2012, Jeremy Hsu, InnovationNewsDaily Senior Writer

Spacecraft could build themselves or huge space telescopes someday by scavenging materials from space junk or asteroids. That wild vision stems from a modest proposal to use 3D printing technology aboard a tiny satellite to create a much larger structure in space.

The "SpiderFab" project received $100,000 from NASA's Innovative Advanced Concepts program to hammer out a design and figure out whether spacecraft self-construction makes business sense. Practical planning and additional funding could lead to the launch of a 3D-printing test mission within several years.

PHYSICISTS PATENT NUCLEAR WASTE-BURNING TECHNOLOGY

University of Texas at Austin physicists have been awarded a U.S. patent for an invention that could someday be used to turn nuclear waste into fuel, thus removing the most dangerous forms of waste from the fuel cycle.

The researchers—Mike Kotschenreuther, Prashant Valanju, and Swadesh Mahajan of the College of Natural Sciences—have patented the concept for a novel fusion-fission hybrid nuclear reactor that would use nuclear fusion and fission together to incinerate nuclear waste. Fusion produces energy by fusing atomic nuclei, and fission produces energy by splitting atomic nuclei. The process of burning the waste would also produce energy. The researchers' goal is to eliminate 99% of the most toxic transuranic waste from nuclear fission reactors.

AN ACCESSORY THAT REPLACES MOUSE MOVEMENTS WITH HAND WAVES
Sep 14, 2012, Bryan Gardiner

It's been nearly 50 years since Douglas Engelbart, an engineer at the Stanford Research Institute, invented the first computer mouse. Since then, his basic point-and-click input scheme has remained fundamentally unchanged; even trackpads and touchscreens, which recognize multiple points at once, work on the same guiding principle. Now Leap Motion, a San Francisco company, is aiming to reinvent human-computer interaction. Its three-inch-long motion-capture device, known simply as the Leap, lets users control computers and manipulate onscreen objects by just waving their fingers.

PLASMA MAGNETOSHELL AEROBREAKING SHOULD BE ONE THOUSAND TIMES BETTER THAN AEROBRaking
SEPTEMBER 15, 2012

This is a NASA NIAC phase 1 study to develop plasma magnetoshell aerobraking. Any breaking drag forces on the Magnetoshell will be three orders of magnitude larger than the aerodynamic forces on the spacecraft. Magnetoshell should be one thousand times better than aerobraking.
SUPERSONIC BI-DIRECTIONAL (SBIDIR) FLYING WING
A supersonic bi-directional (SBiDir) flying wing (FW) has the potential to revolutionize supersonic flight with virtually zero sonic boom and ultra-high aerodynamic efficiency. The SBiDir-FW planform is symmetrical about both the longitudinal and span axes. For supersonic flight, the planform can have as low aspect ratio and as high sweep angle as desired to minimize wave drag and sonic boom. For subsonic mode, the airplane will rotate 90deg in flight to achieve superior stable aerodynamic performance.

DAMAGED METAL SURFACES REPAIR THEMSELVES
Monday, September 17, 2012
A coating filled with tiny lubricant capsules could come to the rescue when metal surfaces dry out and friction builds up.

A ball bearing—or a slide bearing around an axle—needs lubricating at all times. If a leak causes the lubrication in the bearings of large machines to dry out, there can be huge cost implications. Metal surfaces can grate against each other and seize up, in the worst case resulting in a total write-off.

DAMPED RUN EXPERIMENTS VERIFY KEY ASPECT OF SANDIA NUCLEAR FUSION CONCEPT
Sep 17, 2012
To exceed scientific break-even is the most hotly sought-after goal of fusion research, in which the energy released by a fusion reaction is greater than the energy put into it—an achievement that would have extraordinary energy and defense implications.

WARP DRIVE MAY BE MORE FEASIBLE THAN THOUGHT, SCIENTISTS SAY
17 Sep 2012, Clara Moskowitz, SPACE.com Assistant Managing Editor

HOUSTON — A warp drive to achieve faster-than-light travel — a concept popularized in television’s Star Trek — may not be as unrealistic as once thought, scientists say. A warp drive would manipulate space-time itself to move a starship, taking advantage of a loophole in the laws of physics that prevent anything from moving faster than light. A concept for a real-life warp drive was suggested in 1994 by Mexican physicist Miguel Alcubierre, however subsequent calculations found that such a device would require prohibitive amounts of energy.

Magnetoshell Aerocapture for manned Missions and Planetary Deep Space Orbiters
http://www.eaa44.org/Aerospace-Your_Future.htm
Page 8 of 19
HYPERSONIC HIFIRE VEHICLE HITS MACH 8 IN TEST
SEPTEMBER 24, 2012, DOUG MESSIER, IN NEWS

CANBERRA, Australia (DSTO PR) — DSTO scientists have successfully conducted a test flight of an experimental hypersonic vehicle at the Andoya Rocket Range in Norway. The test vehicle reached an apogee of 350 km and then achieved speeds of up to Mach 8 on descent in the experimental band which was from 20.5 km to 32 km in altitude. All sensor and telemetry systems worked perfectly. Scientists believe the launch could be a major step forward in the quest for hypersonic flight.

LIGHT METALS SHAPE THE FUTURE OF FLIGHT

Sep 26, 2012, Brad Collis

Light metals shape the future of flight
September 26, 2012
by Brad Collis

Enlarge

Double Deep within the labyrinth of Monash University’s Clayton campus in Melbourne is a metallurgy laboratory so significant in what it is doing that it has attracted some of the biggest companies in the global aerospace industry from the other side of the world.

DOUBLE STRENGTH GLASS WITHIN REACH
SEPTEMBER 26, 2012

Rice University researchers determined in a new study that a process called chemical vapor deposition, which is used industrially to make thin films, could yield a glass that withstands tremendous stress without breaking.

3-D LASER SINTERING TECHNOLOGY CREATES POSSIBILITY OF SIGNIFICANT WEIGHT SAVINGS IN AIRCRAFT FABRICATION


Sep 27, 2012

More than 50 percent weight savings in aircraft construction is now possible using hypermodern production techniques. A process called 3-D laser sintering of the raw material permits a completely new kind of fabrication. This process can reduce aircraft component part counts and improve designs, leading to enormous savings in weight and volume. The only equipment for this process in Austria - and at its time the second in the world - is located at FOTEC in Wiener Neustadt. The research subsidiary of the University of Applied Sciences located there is presently optimising the monitoring and quality control of the production process, while manufacturing a fuel collector for an aircraft engine that is even around 75 percent lighter than before.

YOUTUBE: FIRST FLIGHT OF FULLY PRINTED AEROPLANE (UAV/DRONE BY LASER SINTERING)
http://www.youtube.com/watch?v=aFFfIB_if18

SLOPPY WARP FIELDS SHOULD BE MUCH EASIER TO ENGINEER
SEPTEMBER 29, 2012

The idea of a warp drive in higher dimensional space-time (manifold) will then be briefly considered by comparing the null-like geodesics of the Alcubierre metric to the Chung-Freese metric to illustrate the mathematical role of hyperspace coordinates. The net effect of using a warp drive “technology” coupled with conventional propulsion systems on an exploration mission will be discussed using the nomenclature of early mission planning. Finally, an overview of the warp field interferometer test bed being implemented in the Advanced Propulsion Physics Laboratory, Eagleworks at the Johnson Space Center will be detailed.

NEW MATERIAL, GRAPHENE, MAY SOON REPLACE SILICON FOR TECHNOLOGY INDUSTRY, EXPERTS SAY
http://www.sciencedaily.com/releases/2012/09/120928085350.htm?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+sciencedaily%2Ftop_news%2Ftop_technology+%28ScienceDaily%3A+Top+Technology%29

Sep. 28, 2012, ScienceDaily

Norwegian researchers are the world’s first to develop a method for producing semiconductors from graphene. This finding may revolutionise the technology industry. The method involves growing semiconductor-nanowires on graphene. To achieve this, researchers “bomb” the graphene surface with gallium atoms and arsenic molecules, thereby creating a network of minute nanowires.

END

SCIENCE THAT CAN AFFECT AEROSPACE

NORTHROP GRUMMAN: X-47B VIDEO
http://www.youtube.com/watch?feature=player_embedded&v=Rj8cMDuPaiA

A TOUR OF THE DLR STAND AT ILA 2012 - VIDEO

END

YOUR FUTURE – VIDEO’s
THESE ARE GREAT WEBSITES TO VISIT:

FUTURE BY AIRBUS
http://www.airbus.com/innovation/future-by-airbus

BOEING – BEYOND EARTH:
http://www.beyondearth.com

ELECTRIC AIRCRAFT CORPORATION
http://www.electraflyer.com/

NASA - AERONAUTICS
http://www.nasa.gov/topics/aeronautics/index.html

MAKERPLANE: A PLAN FOR THE COLLECTIVE HOMEBUILT
August 31, 2012, Glenn Pew, Contributing Editor, Video Editor
The idea behind MakerPlane is to create an "open source aviation project" that allows people to build their own aircraft using personal Computer Numerical Control (CNC) mills and 3D printers. In that way, MakerPlane hopes to create an environment where people can produce aircraft largely "built on a computer controlled mill at home." The man behind the idea, John Nicol, based in Canada, is seeking to reduce the financial means and physical capabilities required by an individual seeking to build an aircraft. Aside from creating a new largely digital workflow for builders, MakerPlane would also seek to cultivate multi-media builder assistance products and physical builder assistance sites. Nicol has unveiled MakerPlane's first design, "Version 1.0," from Israel-based aeronautical engineer, Jeffrey Meyer. The design conforms to LSA weight and speed requirements. V 1.0 also aims to be a modular design and MakerPlane intends to offer plans, free.

CORPORATE WATCH: PARAMOUNT GROUP (AFRICA)
TAKES OFF WITH NEW AIRCRAFT
Aug 17, 2012
The ‘Ahrlac’ jet may not be an aircraft that you have heard of, but it has its place in aerospace history: it’s the first defense aircraft to be completely designed and manufactured in Africa.

NTSB: WINGTIP CAMERAS FOR LARGE AIRCRAFT
September 5, 2012, Glenn Pew, Contributing Editor, Video Editor
Citing 12 accident investigations since 1993, the NTSB has issued a Safety Recommendation to the FAA for installation of anti-collision aids, like onboard camera systems, to help pilots with clearance issues during taxi. The Board says preliminary information collected in its investigations show that pilots of large aircraft cannot easily see the aircraft’s wingtips from the cockpit. It found that in aircraft like the 747, 757, 767, 777 and the Airbus A380 pilots must literally stick their heads out of the window to see the airplane’s wingtips, noting that this "is often impractical." The recommendation notes that the Airbus A380 superjumbo is already equipped with an external camera system, and why that system is insufficient in addressing the Board’s concerns.

FAA REMINDER: SINGLE PILOT JET PROFICIENCY CHECKS COMING
FAA Notice Number: NOTC4129
The FAA has sent out a notice reminding pilots that... "Beginning October 31, 2012, a proficiency check will be required annually for a PIC of any turbojet certified for single pilot operation. The rule, which was changed last year, gave pilots of these aircraft 1 year to obtain the necessary check before it becomes mandatory on 10/31/2012." The rule language is below:
§ 61.58 Pilot-in-command proficiency check: Operation of an aircraft that requires more than one pilot flight crewmember or is turbojet-powered
(a) Except as otherwise provided in this section, to serve as pilot in command of an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered, a person must—
(1) Within the preceding 12 calendar months, complete a pilot-in-command proficiency check in an aircraft that is type certificated for more than one required pilot flight crewmember or is turbojet-powered; and
(2) Within the preceding 24 calendar months, complete a pilot-in-command proficiency check in the particular type of aircraft in which that person will serve as pilot in command, that is type certificated for more than one required pilot flight crewmember or is turbojet-powered.
(j) A pilot-in-command of a turbojet powered aircraft that is type certificated for one pilot does not have to comply with the pilot-in-command proficiency check requirements in paragraphs (a)(1) and (a)(2) of this section until October 31, 2012.

IN FOCUS: AFRICA AEROSPACE & DEFENCE LOOKS TO BREAK RECORDS
091012, Murdo Morrison, London,
Swelling government coffers and rising prosperity in several sub-Saharan African countries should help make this year’s Africa Aerospace & Defense (AAD) the biggest yet.
Countries from Angola to Zambia, Nigeria to Botswana are investing in airborne and other homeland security assets, while a growing business elite is fuelling demand for air travel, including private jets. Over the next decade, Africa is expected to be one of the fastest growing aviation markets, albeit from a low base.

CONCORDE BATTERY APPROVED FOR SKYLANCES
090912, Janice Wood
Wilco has received FAA approval to modify its STC to convert Cessna Models 182S, 182T and T182T from existing lead acid batteries to Concorde’s valve regulated sealed lead acid recombinant gas batteries.
The STC, SA00753WI, permits the replacement of the main battery alone. The main battery is replaced with Concorde’s RG2-15 or RG24-16.

ILA: POLES FLAG UP INDUSTRY PRESENCE AS SHOW PARTNER
091112, Berlin,
Polish representatives are capitalizing on its nation’s status as official ILA partner country to flag up its rich aerospace heritage - and are taking the opportunity to show off one or two surprises.
The most spectacular Polish presence comes from the Bialo-Czerwone Iskry aerobatic demonstration team, with its PZL TS-11 Iskra two-seat jet trainers trailing the colors of Poland’s national flag, while ILA’s display programme promises further airborne antics with the Grupa Zelazny and its single-engine Zlins.

PICTURE: SERBIA REVEALS LIGHT-ATTACK KOBAC
091112, Igor Salinger, Belgrade,
Serbia has revealed a mock-up of a Kobac (“Sparrowhawk”) light attack/counter-insurgency version of its Utva Lasta primary trainer.

Showed for the first time in public during an air show to mark 100 years of the Serbian air force on 2 September, the concept has been developed by Utva, the Serbian Military Technical Institute and national arms trading company Yugoimport.
ELECTRIC AIRPLANE MAKER UNVEILS SOLAR-CHARGING TRAILER
Sep 12, 2012, Jason Paur

The German electric airplane maker PC-Aero is at the Berlin Air Show this week unveiling its latest effort towards making sport flying not only solar powered, but mobile as well. The company’s Elektra One is a single-seat electric airplane that uses both batteries and solar cells to increase the endurance during flight and is capable of flying more than 100 miles per hour.

AD ADDRESSES CESSNA IN-FLIGHT FIRE
Sep 12, 2012, Glenn Pew, Contributing Editor

The FAA has issued a Notice of Proposed Rulemaking (NPRM) affects nearly 3,000 of Cessna’s retractable-gear aircraft and seeks to prevent the possibility of in-flight fire on the cabin side of the firewall. Affected aircraft are models R182, TR182, FR182, 210N, T210N, 210R, T210R, P210N, P210R, and T303 airplanes. The agency acted based on a report of an accident involving a Cessna 172RG. In that case, a fire “rapidly accelerated” inside the cabin, caused injuries to the aircraft’s occupants, and ultimately resulted in a complete hull loss for the airplane. That description closely matches the experience of Jade Schiewe, who was interviewed last year by AVweb’s Glenn Pew (podcast).

NASA LAUNCHES PRIVATE SPACE TAXI CERTIFICATION PROGRAM
http://www.space.com/17599-nasa-private-space-taxi-certification.html
14 Sep 2012, Irene Klotz, Space News

SpaceX’s Dragon unmanned cargo spacecraft successfully docked with the International Space Station on May 25, 2012, the first commercial vehicle to do so. Photo taken by Dutch astronaut André Kuipers. CREDIT: ESA/NASA

PASADENA, Calif. -- With an eye toward breaking Russia’s monopoly on flying crew to the international space station by 2017, NASA has launched a two-stage certification process aimed at ensuring commercial passenger spaceships currently under development will meet the agency’s safety standards, schedule and mission requirements.

NASA expects to award multiple firms a Certification Products Contract (CPC), each of which will run for 15 months and be worth up to $10 million. The program dovetails with the agency’s ongoing partnerships with Boeing, Space Exploration Technologies Corp. (SpaceX) and Sierra Nevada Corp., to develop privately owned space transportation systems capable of flying astronauts to the space station.

GROUND: FAA SAYS THAT HOBBY PLANES, COPTERS AND DRONES ARE VERBOTEN IN D.C. SKIES
17 September 2012, Martin Austermuhle in News

Adam Eidinger still hasn’t found the drone—well, it’s technically a quadcopter—he lost last Sunday over Adams Morgan, but that’s somewhat beyond the point now: the Federal Aviation Administration called him today to let him know that flying any type of model airplane or
AEROSPACE – YOUR FUTURE
AEROSPACE INNOVATION AND CAREER DEVELOPMENT = SEPTEMBER 2012
PUBLISHER: TOM TEEL – 908 798 1051 / TFTEEL@GMAIL.COM
HTTP://WWW.EAA44.ORG/AEROSPACE-YOUR_FUTURE.HTM

helicopter over D.C.’s restricted airspace is strictly forbidden.

MOROCCO: BOMBARDIER AEROSPACE IMPLANTED IN NOUAUCEUR
The group’s president was received by Mohammed VI
http://www.afrik-news.com/article19303.html
19 Sep 2012

The president of Bombardier Aerospace Guy Hachey was received Tuesday by King Mohammed VI in Rabat palace. The Canadian group in Morocco announced imminent start of construction work of buildings of Bombardier in Nouaceur.

The implementation of Bombardier Aerospace in the province of Nouaceur has evolved. President of the Canadian group, Guy Hachey, was received in audience by the royal sovereign of Rabat Mohammed VI. The meeting was attended by the Minister of Industry, Trade and New Technologies, Abdelkader Amara, and the head of the North Africa region in the Bombardier group, Souad Elmallem.

NASA HEAD BOLDEN: WARP SPEED AHEAD

NASA’s administrator says the agency wants to one day defy the laws of physics.
Sep 18, 2012, Jason Koebler

NASA Administrator Charles Bolden speaks at the headquarters of SpaceX, the private company that successfully flew to the International Space Station earlier this year.

Former astronaut and NASA head Charles Bolden says the agency wants to one day design a vehicle that goes faster than the speed of light.

BUGATTI AIRCRAFT TO FLY, SOON
September 20, 2012, Glenn Pew, Contributing Editor

The Bugatti 100P was a purpose built aircraft designed to set world speed records, but in more than 70 years since its conception it has never flown – now, a project based in Tulsa Oklahoma, aims to change that, this year. Enthusiast Scotty Wilson is the self-described "guy at the pointy end of the Bugatti 100P project," and he spoke with 4vweb Thursday. Wilson has invested his time, money, sweat, and nearly all other available resources into creating a faithful reproduction of the aircraft. And he's found help along the way. The result is a now nearly complete aircraft that Wilson says is "externally, dimensionally, and aerodynamically accurate to within a few millimeters" of the original. The airframe is complete, engine installation is coming soon, and first flight, Wilson hopes, will come by year-end. Then the aircraft will set out on tour ... but maybe not in the U.S..

BRANSON OFFERS A SERVICE TO LAUNCH SMALL SATELLITES

Nicola Clark, July 11, 2012

Farnborough, England — Virgin Galactic, the space venture founded by Richard Branson, the British billionaire, said Wednesday that it planned to develop a rocket that would carry small satellites into orbit at a fraction of the current cost.
ITHACA AVIATION HERITAGE FOUNDATION RESTORING
1918 AIRCRAFT 'TOMMY'
http://www.theithacajournal.com/article/20120919/NEW
S01/309190048/Aviation-group-restoring-Tommy-
?odyssey=nav%7Chead&gcheck=1&utm_source=State+Av
iation+Journal&utm_campaign=bc2ce89503-
July+26+2010+Skybrief7+26_2010&utm_medium=email&
nvick_check=1
5:08 PM, Sep. 19, 2012, Kitty Hall-Thurnheer

"This delivery marks another special day for Ethiopian
Airlines and all of Ethiopia. We are not only becoming
the first African carrier operating Boeing's 777 Freighter,
today we are also taking our cargo operations to a new
level and into a new era," said Tewolde Gebremariam,
CEO of Ethiopian Airlines. "As the largest African cargo
carrier operating in some of the fastest growing trade
lanes of the world - between Africa and Europe, Middle
East, and Asia - the new 777 Freighter fleet will
significantly enhance our tonnage and range capabilities."

FAA REQUIRES 787 INSPECTIONS BEFORE FURTHER
FLIGHT
http://www.avweb.com/avwebflash/news/faa_inspection
787_engine_problem_genx_inspection_shaft_failure_20
7382-1.html?CMP=OTC-RSS
September 22, 2012, Glenn Pew, Contributing Editor
The FAA has issued an Airworthiness Directive, effective
immediately, seeking to prevent failure of a critical
component found on GE GENX-series engines after one
failed on a B787 Dreamliner during ground testing. The
failure was contained and the engine threw debris out of
its tailpipe. The source of the failure was determined to
be the engine's fan mid shaft, which fractured. Less than
one month later, in August, an ultrasonic inspection found
the same part in another 787's engine exhibited cracking.
The FAA has determined that cracks are likely to exist or
develop in fan mid shaft within other engines of the same
design. The new AD, published Friday, supersedes an
earlier Service Bulletin (SB) and requires inspection before

From left, Roger Pellerin, Don Funke, Steve Umshide, Rick McGahey and
Jim Rundle are volunteers with the Ithaca Aviation Heritage Foundation.
The group will have a display at East Hill Flying Club’s pancake breakfast
Sunday at the Ithaca Tompkins Regional Airport. / PHOTO PROVIDED

ITHACA— The Ithaca Aviation Heritage Foundation will
display some of its hard work Sunday at the East Hill Flying
Club’s pancake breakfast at the Ithaca Tompkins Regional
Airport.
The foundation received a 1918 Thomas-Morse S4 Scout
in 2009, one of only a dozen remaining in the world. A
group of volunteers has been working hard on restoring
the “Tommy,” as it is affectionately known, to its exact,
original condition.

AFRICA’S FIRST 777 FREIGHTER DELIVERED TO
ETHIOPIAN AIRLINES
Airline To Begin Replacing Older Freighters With More
Efficient And Capable Fleet
The first Boeing 777 Freighter to be operated by an
African carrier was delivered Thursday to Ethiopian
Airlines. The airplane is being leased to Ethiopian Airlines
from GECAS.
further flight, but does not resolve the problem. Further action is expected.

**SENTINEL EXCLUSIVE: NASA WANTS TO SEND ASTRONAUTS BEYOND THE MOON**

http://www.orlandosentinel.com/news/space/os-nasa-space-outpost-20120922,0,3873638.story

Sep 22, 2012, Mark K. Matthews, Washington Bureau
WASHINGTON — Top NASA officials have picked a leading candidate for the agency's next major mission: construction of a new outpost that would send astronauts farther from Earth than at any time in history.

The so-called "gateway spacecraft" would hover in orbit on the far side of the moon, support a small astronaut crew and function as a staging area for future missions to the moon and Mars.

At 277,000 miles from Earth, the outpost would be far more remote than the current space station, which orbits a little more than 200 miles above Earth. The distance raises complex questions of how to protect astronauts from the radiation of deep space — and rescue them if something goes wrong.

**NASA TRANSITIONS ISS NATIONAL LAB SOCIAL MEDIA TO CASIS**


Sep 26, 2012, KENNEDY SPACE CENTER, FL. – The Center for the Advancement of Science in Space (CASIS), the nonprofit organization now managing research on the International Space Station (ISS) U.S. National Laboratory announced today that it is assuming management responsibility for the Facebook and Twitter social media accounts previously operated by NASA starting October 1, 2012.

**H-IIB LAUNCH SERVICE PRIVATIZATION**

http://www.jaxa.jp/press/2012/09/20120927_h2b_e.html

September 27, 2012 (JST)

Through the privatization, we can expect to secure Japan's international competitiveness both for the H-IIB and H-IIB by reducing costs, improving quality and energizing activities via efficient and swift management methods of the private sector. Meanwhile, JAXA would like to engage in enhancing reliability as well as maintaining and operating Japan's launch facilities for Japan's flagship launch vehicle series in order to provide reliable launch means to broader demands.

**U.S., EUROPE WON'T GO IT ALONE IN MARS EXPLORATION**

http://www.spacenews.com/civil/120926-us-europe-mars-exploration.html

26 Sep, 2012, Peter B. de Selding
LIEGE, Belgium — NASA Administrator Charles Bolden on Sept. 26 urged NASA’s international partners not to read too much into an advisory panel’s report on the U.S. agency’s near-term Mars exploration options, saying “NASA does not plan to do anything alone” when it comes to Mars exploration.

Addressing a press briefing here, where he and his European Space Agency (ESA) counterpart, Jean-Jacques Dordain, were receiving awards from the University of Liege, Bolden said the report should be seen only as offering hope that, despite its budget constraints, NASA will be able to send an astronaut to Mars by around 2030 as President Barack Obama has requested.

**WORLD’S ONLY FLYING EYE-HOSPITAL ON DISPLAY AT AL BATEEN**


28 Sep 2012, 2012 Arabian Aerospace

The ORBIS Flying Eye Hospital has landed at Abu Dhabi’s Al Bateen airport where it will attract the attention of the delegates to the 18th World Routes Forum.

ORBIS is a converted DC-10 performing as the world’s only ophthalmic surgical and training hospital with wings and will be allowing visitors the chance to learn how this unique hospital is benefiting those in need around the globe.

**ORBIT:** http://www.orbis.org/Default.aspx?cid=4825-4855
BIGELOW TO REHIRE WORKERS IN WAKE OF NASA’S COMMERCIAL CREW AWARDS
September 2, 2012, Doug Messier

NASA Deputy Administrator Lori Garver is given a tour of the Bigelow Aerospace facilities by the company’s President Robert Bigelow on Friday, Feb. 4, 2011, in Las Vegas. Photo Credit: (NASA/Bill Ingalls)

NASA’s decision last month to award commercial crew contracts worth a combined $900 million to Boeing and SpaceX has provided a boost for Bigelow Aerospace’s efforts to launch private space stations into orbit. Bigelow, which has partnered with both companies to provide transportation services to its orbital facilities, plans to hire re-hire workers who had been earlier laid off due to delays in NASA’s commercial crew program.

NASA AERONAUTIC ACADEMY INTERNS FINISH PROGRAM
Yesterday, September 06, 2012, 8:47:50 PM | by Linda KC Reynolds

NASA Dryden 2012 Aeronautics Academy summer interns show off the large model of the Prandtl-D high-aspect-ratio flying wing. The interns recently completed a ten week internship at Dryden and also visited NASA headquarters in Washington, D.C., Goddard in Maryland, and Ames in San Jose, Calif. Interns left to right: Javier Gonzalez-Rocha, Luis Andrade, Stephanie Reynolds, Steffi Valkov, Kimberly Callan, Julianna Plumb, Joseph Wagster, Nancy PiOon, Ronalynn Ramos and Sanel Horozovic.

JOBS GROW 61%

Sep 6, 2012, Janice Wood, News
JSfirm.com manager Jeff Richards is reporting a record-setting second quarter for the online aviation job board. “There was a 61% increase in the number of aviation jobs being advertised on JSfirm.com during April, May and June of this year compared to the same period in 2011,” Richards stated. “In fact, this was the busiest second quarter for job advertisements in our 13-year history.”

DENVER’S METRO STATE LAUNCHES STUDENTS ON A COMMERCIAL PATH TO SPACE
09/09/2012, Kristen Leigh Painter, The Denver Post
Jeffrey Forrest, chairman of the department of aviation and aerospace at Metro State University of Denver, stands in the Satellite Tool Kit lab on campus. “We've been pounding the drum that there are a lot of business opportunities in this industry,” he says. (Craig F. Walker, The Denver Post)
Most college graduates are told "the sky is the limit," but students in Metropolitan State University of Denver’s aerospace program are told: "Don't stop there."

PRINCETON UNIVERSITY SENIOR GETS $25,000 AEROSPACE ENGINEERING SCHOLARSHIP
Sep 09, 2012, Christina Izzo/The Times of Trenton

PRINCETON BOROUGH — Princeton University senior Seth Gordon realized he wanted to be an engineer after playing with a Lego set he received when he was about 6 years old.
"I thought they were the greatest thing," he said. "I spent hours playing with them."
All that play apparently paid off.
Gordon recently received the top prize in the Iridium NEXT Mission Team Scholarship program, the largest scholarship program in the aerospace industry. The prize is awarded annually to the best and brightest aerospace engineering students to help them become the industry’s next leaders. Gordon was awarded the top prize of $25,000 based on his academic achievements, written essays and letters of recommendation.
SPORTY’S ENHANCES FREE FLIGHT TRAINING PROGRAM FOR YOUNG EAGLES
Sep 11, 2012, Janice Wood
Young people who have discovered flight through the EAA Young Eagles program now will have more options to further explore aviation as Sporty’s Pilot Shop has upgraded its Sporty’s Learn To Fly Course, which is available to all Young Eagles.

NASA ACCEPTING APPLICATIONS FOR AERONAUTICS SCHOLARSHIPS
Sep 12, 2012
NASA’s Aeronautics Research Mission Directorate is accepting scholarship applications from graduate and undergraduate students for the 2013-2014 academic years. The application deadline is Jan. 14, 2013.

NASA expects to award 20 undergraduate and five graduate scholarships to students in an aeronautical engineering program or related field. Undergraduate students who have at least two years of study remaining will receive up to $15,000 per year for two years and the opportunity to receive a $10,000 stipend by interning at a NASA research center during the summer.

NASA ACCEPTING APPLICATIONS FOR AERONAUTICS SCHOLARSHIPS
RELEASE : 12-317
For details about this scholarship program, a list of available research topics for graduate students, and the application process, visit: http://nasa.asee.org/
WASHINGTON -- NASA’s Aeronautics Research Mission Directorate is accepting scholarship applications from graduate and undergraduate students for the 2013-2014 academic year. The application deadline is Jan. 14, 2013.

THE BOY WHO PLAYED WITH FUSION
By September 13, 2012, Delaynie A Koenig
At age 14, Wilson built his first successful fusion reactor, earning him the title of “The Boy Who Played with Fusion.” Last week, Wilson visited the Lab to tour the National Ignition Facility (NIF), speak with researchers and share his life’s work thus far.

RECORD-SETTING FEMALE ASTRONAUT TAKES COMMAND OF SPACE STATION
15 Sep 2012, Tariq Malik, SPACE.com Managing Editor
NASA astronaut Sunita Williams, who holds the record for the longest spaceflight by a woman, took charge of the International Space Station Saturday (Sept. 15), becoming only the second female commander in the orbiting lab’s 14-year history.

BOEING’S ALBAUGH: WE MUST INSPIRE A NEW GENERATION OF AEROSPACE ENGINEERS
Christine Boynton, Sep 20, 2012
The aerospace industry must inspire the younger generation to pursue careers in engineering, Boeing EVP Jim Albaugh said this week.
He told a Wilson Center forum in Washington DC that “about half” of Boeing’s workforce will be eligible to retire by 2015.
“It’s not just at Boeing,” he said “and it ripples through our supply chain.”
The shortage could lead to the US losing its edge in the global aerospace industry, he cautioned.

Zhi Liao and Tom Anklam of NIF, flanking Taylor Wilson, discuss the Master Oscillator Room.
Photo: Alex Camargo
Taylor Wilson stood at the front of the auditorium, shifting from foot to foot and adjusting his suit sleeves like any other 18-year-old boy. His constant physical energy mirrors his ceaseless pursuit of net-energy fusion, a topic not many other teenage boys could discuss with any level of prowess.
EAA - YOUNG EAGLES
Former Young Eagle and now Private Pilot Ellen McIlquham of Chippewa Falls Wisconsin recently “paid it forward” by giving Connor Hanson a Young Eagles flight. Congratulations to both.
The Space Window at National Cathedral

Credit: NASA

The ‘Space Window’ was designed by St. Louis artist Rodney Winfield and fabricated under his supervision. Whirling stars and orbiting planets are depicted in orange, red and white on a deep blue and green field.

Did You Know?

- The Space Window on the south aisle of the Cathedral contains a piece of lunar rock.
- There is a sculpture of Darth Vader on top of the Cathedral’s west tower.