

Product & Company News

NASA RESEARCH FOR QUIETER SUPERSONIC AIRCRAFT

NASA is concluding a series of flight tests to measure shock waves generated by an F-15 jet in an effort to validate computer models that could be used in designing quieter supersonic aircraft.

The Lift and Nozzle Change Effects on Tail Shock, or Lancets, project embodies research aimed at enabling the development of commercial aircraft that can fly faster than the speed of sound without generating annoying sonic booms over land. Supersonic flight over land generally is prohibited because of annoyances caused by their noise.

A sonic boom is created by shock waves that form on the front and rear of an aircraft. The boom loudness is related to the strength of the shock waves. The formation of the shock waves is dependent on the aircraft geometry and the way in which the wing generates lift.

During the flight tests at NASA's Dryden Flight Research Center in Edwards, Calif., two F-15s generally followed 100 feet to 500 feet below and behind each other, measuring the strength of the leading aircraft's shock waves at various distances using special instruments. Global Positioning System relative positioning was used to guide the pilot of the probing aircraft to a test position and for accurate reporting of measurement locations.

The flight results will be used by computational fluid dynamics researchers at NASA's Langley Research Center in Hampton, Va.; NASA's Ames Research Center at Moffett Field, Calif.; and at Dryden to develop and validate improved tools that incorporate aft-shockwave effects in the prediction of sonic booms. The flight data also will be made available to interested university and industry

partners in order to further their research objectives.

More info: NASA, Dryden Flight Research Centre, PO Box 273, Edwards CA 93523, USA. Tel: 001 661 276 3311

LORD MR SHOCK DURABILITY EXCEEDS HMMWV PASSIVE DAMPER SPEC BY FACTOR OF FOUR

Lord Corporation has announced the performance level of their Magneto-Rheological (MR) active shock absorbers for military vehicle primary suspensions.

In recent lab testing conducted by Lord, MR active shock absorbers for HMMWV and other military vehicle primary suspensions surpassed 4-million cycles of durability testing. In some cases, the Lord MR shocks exceeded 5-million cycles.

"This is a significant milestone," said Steve Hildebrand, MR suspensions engineering manager. "The MR shocks exceed the HMMWV passive damper specification, which requires a sinusoidal test of 1-million cycles up to 120°C. In addition, our tests are run with sine-on-sine with a side-load at higher temperatures, which is more severe, yet we exceed the HMMWV passive damper test specification by a factor of four or more. And, post-test analyses reveal no degradation of MR fluid."

Testing also included severe off-road HMMWV mission profiles with a side load. The vehicle-based durability testing exceeded 15,000 miles of accelerated, off-road operations with no degradation of MR fluid.

More info: Lord Corporation, 111 Lord Drive, Cary, NC 27511-7923, USA

TRELLEBORG MOUNTINGS FOR INDIAN SHUNTING LOCOS

Trelleborg Industrial AVS has won a contract to supply Metalastik UD bushes to SAN Engineering and Locomotive Co. Ltd. for use in the drive couplings of three-axle shunting locos, which it manufactures for use on the Indian network and for export to Africa and the Asia Pacific region.

Trelleborg IAVS's Metalastik UD (ultra duty) bushes consist of two metal tubes bonded to an internal rubber element, which is pre-stressed to give maximum dynamic strength and durability. They are widely specified in vehicle suspensions, pivot arms and mechanical linkage to accommodate torsional movements and axial/radial loads. The rubber permits oscillating movement, whilst also minimising noise and vibration without the need for lubrication and maintenance associated with roller bearings.

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MAGNA POWERTRAIN DOUBLES TESTING PRODUCTIVITY WITH LMS TEST.LAB

LMS has announced that automotive supplier Magna Powertrain has successfully deployed LMS Test.Lab and is experiencing productivity gains of up to 50%. Magna Powertrain uses the LMS systems to optimise the NVH performance of powertrains and drivelines it designs and manufacturers for cars, trucks, SUVs and other vehicles.

Based in St. Valentin, Austria, the company uses the advanced testing technology in developing components and integrating complete systems into vehicle designs for major automotive

manufacturers including BMW, DaimlerChrysler, Ford, General Motors, Porsche, Renault, Volkswagen, Nissan, Honda, Toyota and others. The firm is a subsidiary of Magna International, the world's largest brand-independent engineering and manufacturing supplier in the automotive industry.

The NVH system implemented at Magna Powertrain consists of the LMS Test Lab software suite and multiple LMS SCADAS Mobile front-end units, each with 40 data acquisition channels and versatile signal-conditioning capabilities. The lightweight, laptop-size units are easily transported and can be quickly set up on the front passenger seat of a vehicle with the help of test-scenario templates and convenient transducer verification/calibration.

A single operator driving the test vehicle readily conducts the test via convenient remote controls and real-time monitoring capabilities that provide results as tests are being run. The user interface of LMS Test.Lab has been specially tuned for mobile testing applications. Large displays show key parameters and analysis curves, so the operator sees at a glance the progress of the test and the validity of data being acquired. Magna testing teams use the systems for in-vehicle testing at customer sites, as well as for testing full vehicles and drivetrains in the lab during product development.

Andreas Wieser, Department Manager of Acoustics and Vibration at the Magna Powertrain Engineering Center, explains that real-time capabilities of the LMS system are especially useful in increasing testing efficiency. "In the past, most of our engineers' time was spent behind a desk number-crunching raw data and performing calculations to find the root cause of NVH problems. If the data was inconclusive, more tests had to be run. Then more time was spent writing reports to document the results," says Wieser.

"LMS Test.Lab streamlines this entire process from start to finish and eliminates many of these iteration and rework bottlenecks," Wieser explains. "Measurements are validated on the spot, and results are available immediately with on-line plots such as waterfall diagrams and colour maps. Realtime feedback provides valuable insight into the root cause of problems and allows a quick response after tests are run. More detailed studies such as transfer path analysis and noise contribution analysis can also be quickly performed directly after testing. This is an important time gain and enables us to provide customers with impressive state-of-the-art engineering on-site.

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LARSON DAVIS INTRODUCES USB THERMAL PRINTER SUPPORT FOR SOUNDTRACK LXT SOUND LEVEL METER

Larson Davis, a division of PCB Piezotronics, Inc. (PCB®), introduces VER 1.51 firmware for the SoundTrack LxT Sound Level Meter enabling support of a portable USB thermal printer. This new feature allows the user to print a screenshot of any analysis screen as well as a summary report detailing the overall sound measurement.

The ability to generate a report without the need to download data to a PC is ideal for noise consultants, code enforcement officers, or anyone looking for a quick summary of measured data. In addition, SoundTrack LxT allows customisation of its user interface and a feature to lock-out changes to system or measurement setup. A simple, secure interface aids occasional users and is helpful when training beginners on

noise measurements.

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LMS PARTNERS WITH VON KARMAN INSTITUTE

LMS has announced a partnership with the Brussels-based von Karman Institute for Fluid Dynamics (VKI). This collaboration will promote joint research, technology and development projects and consultancy activities in aero-acoustic modeling and testing. It combines LMS' numerical vibro-acoustics simulation and data acquisition expertise and VKI's wind-tunnel testing, measurement techniques and flow phenomena modeling know-how.

VKI's knowledge of environmental and applied fluid dynamics, wind technology, measurement techniques and flow phenomena simulation will help LMS develop and validate new methods and software technology. LMS' expertise in the field of numerical vibro-acoustics and data acquisition technologies brings considerable value and application knowledge to VKI research projects. Formalizing a five-year collaboration in acoustics and fluid dynamics, the joint LMS-VKI association will focus on consultancy projects and research and development activities in aero-acoustics and fluid-structural interaction for both simulation and testing applications. In the aero-acoustics field, these activities cover heating, ventilation and air-conditioning projects, whereas fluid-structural interaction applications are useful in wind noise transmission research.

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FEDERAL-MOGUL CORPORATION'S QUIETSHIELD® (GRN) DEBUTS

Federal-Mogul has developed an innovative, environmentally-friendly product that helps eliminate noise in a vehicle's cabin using recycled waste packaging and other by-products normally discarded at a vehicle manufacturing plant. QuietShield GRN's (Green Non-woven) first application will be in the 2010 Buick LaCrosse luxury sedan. Cardboard packaging used by manufacturers, in this case from General Motors' metal stamping plant in Marion, Indiana, is recycled into QuietShield GRN and is used as eco-friendly acoustical padding in the LaCrosse's headliner to reduce noise in the passenger compartment. QuietShield represents a lower cost solution to provide acoustical padding versus traditional products, in addition to reducing landfill utilization and waste disposal costs.

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NEW FAMILY OF SIGNAL CONDITIONERS

PCB Piezotronics has introduced a new family of rack mounted signal conditioners, available with selectable filters or isolated grounds. These signal conditioners are best suited for applications where case ground piezoelectric sensors are used and could potentially cause ground-loop noise, such as during aerospace or satellite component vibration testing, automotive component testing, product testing, drop testing, and any general vibration testing. Model 483C30 features eight channels with true galvanic isolation of each input to output, which is also selectable on/off per channel. Isolation is ideal for the removal of ground loop noise caused by sensors which are electrically on ground.

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NEW SOUND LEVEL MONITOR WITH ALARMS FOR WORKER SAFETY COMPLIANCE

Extech Instruments has announced its SL130 Sound Level Monitor featuring both internal alarm illumination and external alarm output. Designed for worker safety compliance, the SL130 is ideal for industrial environments where there is a need to generate an alert when sound levels exceed a pre-set limit. The SL130 features four built-in super bright LEDs that illuminate to visibly alert personnel when the area sound level limit has been exceeded.

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NEW HURRICANE MODEL ALL WEATHER SOUND PANEL

Acoustiblok Inc has revealed its new All Weather Sound Panel, the Hurricane model, with record breaking test results of over 270 mph (188 psf).

Like the standard 4' 8' All Weather Sound Panel, the hurricane model not only blocks sound but also absorbs virtually all noise from chillers, generators, and other industrial sources. The 4' x 8' x 2" panels are easily placed around the noise source, still allowing air flow but absorbing and blocking virtually all sound that strikes them. The installation can be either permanent or temporary. The panels are engineered to specifically withstand the

most rigorous outdoor and industrial applications, from offshore oil rigs to military usage.

The Acoustiblok All Weather Sound Panels contain an inner layer of the revolutionary Acoustiblok sound isolation material, a 1/8 inch thick proprietary viscoelastic polymer with a high density mineral content, heavy yet flexible. Through a unique thermodynamic process, the Acoustiblok material is engineered to transform sound energy into inaudible friction energy as the material flexes

from sound waves. A 1/8 inch layer of Acoustiblok in a standard wall will result in more sound reduction (STC 53) than 12 inches of poured concrete (STC 51); moreover, it can reduce sound transmission by as much as 30 decibels, according to Riverbank Acoustical Laboratories test results.

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GOLFERS NEED EARPLUGS

Golfers who use a new generation of thin-faced titanium drivers to propel the ball further should consider wearing ear plugs, experts advise. Ear specialists suspect the "sonic boom" the metal club head makes when it strikes the ball damaged the hearing of a 55-year-old golfer they treated. They outline the details of this case in the British Medical Journal. Lead researcher Dr Malcom Buchanan, an ENT specialist and a keen golfer, said: "Our results show that thin-faced titanium drivers may produce sufficient sound to induce temporary or even permanent cochlear damage in susceptible individuals." He said golfers should be careful when playing with these thin-faced clubs as they make a lot more noise, and suggested they could wear earplugs for protection. Crystal Rolfe, an audiologist for the RNID, said: "Exposure to loud impulse sounds over time can cause damage. It is a short, sharp burst of very loud peak sound with this type of golf club. "Earplugs would offer some protection and if someone was playing regularly with these types of club they might consider wearing them."

REGULATION: MAKE IT UP AS YOU GO ALONG

An Aberdeenshire Council committee rewrote its rules to "send a message" to a planning applicant. Gail Davidson wants to start a dog kennels business on land currently used for horse grazing at Mains of Foveran, near Newburgh. But planners, who agreed the business was suitable for the countryside, recommended the application should be thrown out after Mrs Davidson failed to send enough information on the potential noise impact on surrounding houses. At the recent Formartine area committee meeting, councillors sympathised with the plight of the planners, but were reluctant to refuse the application outright. So they made up a new rule altogether. Committee chairman and Mid-Formartine councillor John Loveday said he believed it was the right business in the right place, but commended the officers for bringing it before members. Others agreed, including local councillor Debra Storr. She said: "I would like the noise assessment to be done before we grant it." Ms Storr suggested the committee agree a delegated grant, which meant the scheme would be considered again by councillors after a noise assessment was carried out. But after a debate, the committee decided a delegated grant would not send out a strong enough message so they decided to invent a new decision altogether. The delegated refusal, which got the unanimous backing of the members, gives planners the power to throw the application out if the noise assessment and another condition have not been fulfilled by March 24. Local councillor Rob Merson said: "We should be seen to be encouraging businesses in the countryside but everything the officers have said has been entirely valid. A delegated refusal sends a clear message that we support our officers but still want the business."

SHANGHAI TARGETS NOISE POLLUTION

Shanghai is to increase its efforts to control noise from elevated roads, expressways, elevated train lines and railway lines. In addition to setting up sound barriers at about 900 spots on the roads that receive the most complaints, the city will now investigate noise pollution at residential complexes, schools and hospitals near railway lines. Noise control is included in the fourth round of the Three-Year Environmental Protection Action Plan kicking off this year," said Xi Ailing, an official from the Shanghai Environmental Protection Bureau. "We will carry out more measures on noise control, including investing more money and improving the local noise administration system." Officials said the latest round of the action plan will focus on problems local residents care about the most, including vehicle exhaust fumes, construction dirt and noise. Last November, the bureau began seeking suggestions from residents, experts and government departments in a bid to improve the action plan, which will involve about 80 billion yuan (US\$11.7 billion) of investment on more than 200 projects. The final version of the plan will be published soon, according to the bureau.

ST PAUL – MINNEAPOLIS LIGHT RAIL DELAYED TO STUDY NOISE CONCERNS

Central Corridor light rail trains may not be leaving the station as early as hoped. Construction on the light rail project between St. Paul and Minneapolis has been pushed back from spring 2010 to late summer 2010. Additional delays could occur if Central Corridor planners can't agree ways to solve on noise and vibration worries raised by Minnesota Public Radio and the University of Minnesota. Minnesota Public Radio argues that noise and vibration will disrupt its broadcasting and the University argues that sensitive research would be affected.

MOTORCYCLE SEATS DO NOT CAUSE IMPOTENCE: MAYBE ITS THE ELFS

Says patent-granted author Randall Dale Chipkar, "Based upon limited information one cannot conclude motorcycle seats as causation for impotence. Bicycling or hard scooter seats on rough roads are much more rigorous on the groin rather than modern day cruising seats. Not to mention motorcycle rubber-mounted engines, sophisticated suspensions, smooth asphalt and contoured padded seats. Subtle groin vibrations increase blood flow and are actually stimulating not debilitating on our tissues. Regular motorcycle seat vibration is not going to damage penile nerves," Chipkar adds. The pelvis and perineum are designed for prolonged sitting properly displacing pressure and any eventual discomfort can be walked off without sustaining biological harm or compromised blood flow. "Causation of impotence or erectile dysfunction involves many issues including lifestyle habits. Unfortunately, I feel there is a much greater issue than pressure or vibration linking impotence to motorcycle riders," says Chipkar. "Most motorcycles have electrical components beneath the seat. Extremely low frequency electromagnetic field (ELF EMF) radiation passes through the seat penetrating into the rider's groin. ELF EMFs can disrupt zinc ions which are linked to impotence and erectile dysfunction. Furthermore, excessive ELF EMF invasion compromises electromagnetic homeostasis involving neuron function, hormone imbalance and adrenal fatigue all linked to impotence and libido loss," Chipkar says. "I discovered up to 500 milliGauss of ELF EMF radiation above motorcycle seats zapping the prostate. In contrast, many doctors raise cancer concerns involving 3 to 5 milliGauss of ELF EMF exposure from hydro tower power lines and other sources," adds Chipkar.

CITY'S NOISY TENANTS FACE NEW '3 STRIKES YOU'RE OUT'

Problem tenants could start receiving “disruptive conduct” letters and landlords could start facing fines for unregistered rental properties next month, following the passage of Lancaster City’s (Pa) new residential rental property law. City Council members unanimously passed an amended version of the bill over the objections of some citizens. The law is intended to address problem tenants and landlords and ensure all city rental housing complies with safety and sanitation codes. It includes a provision that would require landlords to evict tenants who receive three notices of disruptive conduct within 12 months. Those tenants would be placed on a City Hall list of problem tenants. The law also imposes fines on landlords who fail to evict problem tenants and repackages existing requirements for registration and licensure of rental units. Lancaster Mayor Rick Gray said he expects to sign a final version of the law soon. But a threatened crackdown won’t begin immediately. First there will be meetings with city police officers about enforcement of the new law and what constitutes “disruptive conduct,” said Gray. The new law specifically mentions noise and loud music or any “nuisance-causing that it unreasonably interferes with the peaceful enjoyment by other persons of their premises or causes damage to property that is owned by others.” The city law is broader than the existing city noise ordinance and disruptive conduct doesn’t necessarily rise to the level of the state disorderly conduct statute.

LANDMARK JUDGEMENT: RACETRACK FINED £860,000 FOR NOISE POLLUTION

Motorsport events throughout the UK could be threatened after a landmark High Court ruling went against Croft Circuit, near Darlington. Track bosses have launched a racetrack review after the circuit – the only national championship venue in the region – was hit with a huge fine for noise pollution. Croft Promosport has been ordered to pay damages and legal costs totalling nearly £860,000, in a decision that leaves it and other circuits open to further claims. Derek and Julia Watson and their daughter, Jill Wilson, who live within 300 metres of the circuit, in Dalton-on-Tees, said the enjoyment of their homes had been gravely affected by “loud, intrusive and repetitive noise”. Croft Promosport’s appeal was dismissed by judges sitting in London’s Appeal Court. The company argued that Mr Justice Simon was “plainly wrong” to rule in favour of the Watsons and their daughter, who live at Vince Moor East. Its barrister, Richard Jones, argued that planning permissions granted in 1963 and 1988 had changed the character of the area to such an extent that noise levels were reasonable. He added that noise and other racetrack issues had been carefully considered by planning inspectors during two public inquiries, and a balance struck between the interests of local people and the public amenity value of the circuit. Mr Jones said the court decision would have serious implications for the future use of the racetrack, exposed Croft Promosport to enormous legal bills and opened up the possibility of further claims from neighbouring residents. But Appeal Court judge Sir Andrew Morritt said he could find no legal flaw in Mr Justice Simon’s conclusion that the Watsons and Mrs Wilson had suffered an “actionable nuisance”. Croft Promosport was refused permission to make a further appeal to the House of Lords and ordered to pay more than £120,000 in legal costs immediately. However, as a result of the injunction limiting race activities, the damages, which were based on the reduction in value of homes caused by the noise nuisance, may be reduced. Until tested, this judgement apparently implies that any organization carrying out noisy activities could be sued by its neighbours.

