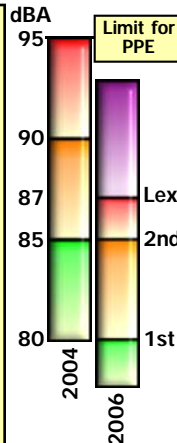


Noise and HAV Benchmark Audits

Examples of the potentially more serious consequences of the new Noise and HAV regulations for some companies include a massive increase in the costs of PPE or a reduction of up to 60% in the productivity of some hand tools. As the implementation date for the regulations looms, it is a good time to evaluate procedures against "best practice" benchmarks and to assess the options and ramifications for your business.

Noise Audit - Key Benchmarks

- **Noise Hazard Areas - Re-assessment**
Evaluate options to meet new requirements
 - **PPE - 95dB(A) limit for effectiveness**
Assess and cost the additional PPE requirements for each of the options
 - **Noise Control**
Evaluate the noise control options and costs - reducing levels can provide major benefits
 - **Company Policy**
Revise to reflect updated "best practice"
 - **Training**
Plan a training schedule for policy revisions
- Check 3 inside for more information.**



We have developed new benchmark audits for noise and hand-arm vibration. These extend the conventional risk assessment by adding:-

Dual Assessment - provides a detailed comparison of the company situation and required management programmes under both the current and the new regulations - with optional Digital Noise Assessment CD template.

Performance Evaluation - comparing key elements of the current management programme with best practice industry benchmarks.

Engineering Control - a detailed evaluation of the engineering control options to minimise risk at source.

The audits provide the information you need to manage the process of updating policy and procedures to comply with the new regulations.

Stop Press

Top 10 Noise Control Techniques

A new summary of the top 10 simple and widely applicable "DIY" noise control techniques. They provide substantial reductions quickly and cheaply - and with no significant effect on normal operation. **Check 7** for a copy.

Training Made Simple - Revised

Updated workshops include short IOSH Update courses for competent assessors (the new Directive and guidance on "best practice"); in-house noise control for engineers, environmental noise analysis and reporting, revised HAV management/assessment Our training literature provides a single source for high quality, practical training in all aspects of Noise and Vibration. **Check 9** for a copy.

Email Info - your own, accessible, reference library

Acquire searchable email copies of the guides, technical information and case studies (in **colour** with **sound**). **Check** the boxes inside or log on to www.invc.co.uk.

New Web Site

Our brand new web site is now up and running. It gives you instant access to the latest developments in occupational and environmental Noise, Vibration, HAV management, case studies (including sound), training, useful links, new products
www.invc.co.uk

ProTest-ing BMW New Mini Sounder



ALPHR Technology has integrated our ProTest system into their automated end-of-line BMW Mini console function test station installed at UK-NSI. It applies stored expertise to convert subjective human judgements about the quality of the warning sounder "bleeps" into quantifiable objective test data and detects subtle differences indicating faults that could cause premature failure.

The sophistication of the technology provides accurate discrimination despite background noise from other plant. As the noise tests can be carried out during functional checks on a standard test rig without a conventional, high cost acoustic enclosure, the increased productivity and cost benefits reduced the pay-back time to a few weeks. **Check 18.**

Fan Silencing at Source - Without Silencers...

Combustion fan noise from a new waste heating system at a Palgrave Brown MDF site (www.palgravebrown.co.uk) was the source of complaints - and a potential abatement notice. The supplier and their consultants had tried conventional measures (additional silencing, reduced fan speed) over an extended period to no avail. On the point of admitting defeat, they were referred to us. Our unique **Quiet Fan technology (Qft)** was fitted in hours - next morning, it was hard to tell that the fan was running. The tonal noise was reduced by 22dB and the overall level by 9dB(A) (more detailed results are shown on the back page), quickly, permanently and at low cost. The results have been so impressive that Alan Fillingham, the Director, has recommended our approach throughout the group. **Check 6**



Jim welds 22dB of attenuation inside the burner I.D. fan ...

for a copy of our technical note on fan noise control. **Check 6**





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 Email: consult@invc.co.uk Web: www.invc.co.uk

... best practice in noise and vibration assessment and control ...

HSC Consultative Document on HAV Published

This poses no great surprises for those with a copy of our HAV Management Manual and provides a further incentive to use HAV-Base in risk assessments. However, there are clarifications that will influence the HSE view of "best practice" in HAV management. These changes are reflected in the following updated items and in our IOSH courses. Meanwhile, in practical terms, the Whole Body equivalent remains somewhat in limbo ...

HAV Audit - Dual Assessments

Our audit assesses present company Risk Management policy and practice against current best practice benchmarks. It includes a Dual Assessment under both current and new regulations to facilitate forward planning and is an effective short-cut to the "perfect" HAV Management Programme. **Check 13.**

HAV-Base - Tool Register - Hiring Guide ...

HAV-Base is the largest database of validated field vibration data available and is also the ideal company Tool Register, combining tool details and safety data for in-house or Hire Company use. Quoting the HSC document "... declared (... lab. test) vibration ... supplied by the tool manufacturer, may greatly underestimate workplace levels of vibration. ... measurement is not required in all cases, provided suitable published vibration data is available." Cue HAV-Base - minimise or eliminate live measurements and automate risk assessment and management. Best Practice at a fraction of conventional costs. **Check 15.**

HAV Management Manual - 2004

Our pragmatic guide to best practice in HAV management. A free summary is available or you can buy a full copy on CDROM as an intranet reference and popular template for company policy. Alternatively, get a copy of the 214 page HSC document from www.hse.gov.uk/consult/condocs/cd190.pdf. **Check 14.**

New HAV-Test - Tool Maintenance

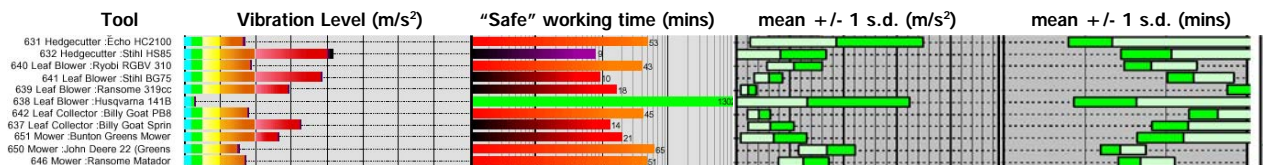
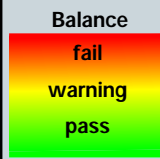
Vibration based maintenance is an important element in any HAV risk management programme. It involves using vibration measurements to assess the mechanical condition of tool components prior to maintenance and ensure that the maintenance procedure itself returns each tool to its lowest vibration condition to minimise risk to the operator. This also substantially reduces maintenance costs by identifying tools that need not be stripped.

HAV-Test provides simple, automated tool vibration testing in the maintenance workshop. It uses vibration analysis techniques to determine the mechanical condition of tools and to provide an instant diagnosis of which components should be checked or replaced to



Picture: CP Desoutter Ltd

ensure that the overhauled tools will generate the lowest levels of Hand-Arm Vibration possible. We can provide complete turn-key tool maintenance programmes - or technical support to add vibration testing to existing procedures. **Check 16.**



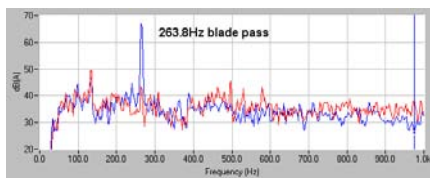
HAV-Base graphical summaries of both absolute and statistical HAV data for each tool and tool category

Noise and Vibration Analysis and Recording - made simple

The ability to make detailed frequency analyses is not just useful, it is virtually essential for any project involving noise or vibration (take a look at the proportion of our case studies that involve narrow band frequency analysis). Now you can add this capability to any sound level or vibration meter, very simply and at very low cost. Whilst we developed **FrequencyMaster** for our own use, it has since become the best selling frequency analyser in the UK.

Environmental Noise

This is an overlay of the combustion fan noise on the front page before and after modification. **FMaster** was used to identify the precise frequency and level of the tone - and also the exact contribution to the overall noise level in dB(A).



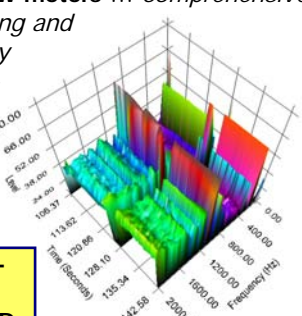
Occupational Noise

Instant diagnosis of the contributions to noise exposure from different noise sources.

Engineering Development and Product Design ...

White goods low-noise design ... acquired more useful information in an hour than the previous several weeks with conventional instrumentation ...

Automotive electric window motors ... comprehensive noise and vibration recording and analysis system for highly portable international use - smaller, cheaper and more sophisticated, yet much easier to use than conventional multi-box instrumentation ...



Extend your capabilities - Check 19 for a free demonstration copy on CD.

Sounding -



Noise and Vibration Directives - an unfair cost on industry in the UK?

It is very evident that the policing of regulations based on directives is very inconsistent across the EU. Consequently, as compliance is relatively strict in the UK, this becomes an inequitable additional cost compared with many other countries. We have suggested that the HSE should push for continuous assessment of compliance across Europe as part of a process of both implementing and "policing the policing" of the regulations. You might like to forward your own ideas to the HSC as part of the consultation process over the new Noise and HAV Directives.

Video Analysis - you've been framed ...

We regularly analyse the soundtracks of video and other recordings to provide instant and detailed assessments of noise problems - and can even provide detailed noise control recommendations without a site visit. An occasional bonus is that there are often some quite interesting snippets at beginning and end of the tape - including a discussion of the merits of smoked bacon, snoring (fell asleep over his recorder!), colourful descriptions of local residents and other engineers ...

Candidates for Room 101 ...

Sophisticated noise meters and analysers designed by people who've never done a measurement in their lives (training course - delegates bring instruments - I'm supposedly an "expert" but still struggle to get to grips with the small novel of a manual in order to make even simple measurements ...);

Fan suppliers who don't know if their fans are tonal (octave bands and dB(A) if you're lucky - they could just listen to it - or these days you can buy a frequency analyser for less than £1000 ...);

Gossamer instrument cables with connectors that are so esoteric that they ought to be in an art gallery (they are certainly costed as works of art - and are definitely designed for decoration rather than robust field use). Anything not in the RS catalogue should be banned as an effete item of post-modern personal jewellery ...

- off

Noise Control Innovation

As engineers, we regard conventional noise control palliatives such as enclosures and silencers as a generally unsatisfactory "last resort" - there ought to be a better way. This has engendered a culture of innovation in developing successful new noise control techniques - "better ways" that don't offend our engineering sensibilities or interfere with hygiene constraints, maintenance, access Since the technology is also often an order of magnitude less expensive, it is may well be a good idea to get a second opinion from us on the current state-of-the-art for noise control projects. The following are a couple of recent examples - check 5 for more case studies or take a look at our web site.

Useful Links

Total Maintenance Solutions (TMS)

Provide a complete maintenance and contracting service - from spares to fabrication and contract maintenance. This extends to hand tools and noise control modifications - useful people to know.
www.online-tms.com

3M Low Vibration Grinding Disks

New 3M Green Corps grinding disks can reduce HAV risks very substantially on existing tools
www.mmm.com

Desoutter

Wide range of quality hand tools, technical support and training.
www.chicagopneumatic.com

IOSH

Huge range of accredited training courses, including noise and HAV.
www.iosh.co.uk

Acousteel

Sound deadened steel (including stainless) - quiet guards, hoppers, panels. www.acousteel.com

Roof-Top Chiller Plant

The cost of reducing the noise from a "chiller-farm" on the roof of a large multi-storey facility to meet the requirements of the Local Authority had been estimated at over £300,000. Fitting the proposed acoustic screens would also have required considerable planning (closing streets and bringing-in cranes) and there was also the possibility of reduced cooling capacity.

The communications company involved approached us in the hope that we could provide a better alternative. A very careful analysis of the noise sources and layout plus some lateral thinking resulted in an elegant solution involving a combination of engineering control at source, novel local acoustic treatments and the clever use of geometry. The result was a set of modifications that were easy to implement in convenient stages and provided a noise reduction of c 15dB(A) at a cost of c £40,000 - and with no effect on normal operation or performance.



Compressor Product Development

As part of a continuous product development programme to maintain their world-leading reputation, CompAir asked us whether it would be feasible to re-design the noise control package on one of their compressors. The initial target was to remove the silencer element to reduce the overall size of the unit - without any increase in noise or a reduction in the performance of the cooling system.



Source control modifications were developed for the cooling system which reduced the overall noise from this element and also cut the tonal content (less "nuisance"). Coupled with modest flow and geometry changes, the new package reduced the overall "headline" noise from the compressor by 2 - 3dB(A), despite removing the standard silencer - and all without cost or performance implications. www.compair.com

NOISE AND VIBRATION INFORMATION AND TECHNICAL SUPPORT: EMAIL AND FAX-BACK

The INVC provides extensive technical support and training across industry. Feel free to give us a call for advice, information or to discuss particular problems. If you'd like more free information on any of the following, check the required items, fill in your details and email, post or fax a photocopy of this section to the number below - or fill in the email request form on our website.

Check one of these boxes if you'd like an email .pdf copy of this newsletter; with sound (350kB) - without sound (230kB) -

Occupational Noise Management

- 1A DNA Digital Noise Assessment (Information sheet)**
 - 1B DNA Demonstration CDROM**
- DNA** is the quality benchmark that puts all your assessments on disk, making past data instantly accessible and ensuring that all future assessments meet the same standards (with a common layout) to reduce costs by 80% or more. Check for the technical note and / or demonstration CDROM (includes sound).

- 2 New Physical Agents (Noise) Directive**
A guide to the content and practical implications of the new directive with advice on common improvements that can be made to management procedures.

- 3 Noise Assessment and Control Audit** Updated
Provides you with a benchmark dual assessment and a costed list of all the noise control options (with estimates of noise reductions in each case) for single machines or whole sites using the best of current technology. Typically saves 50%-90% of any noise control project cost.

- 4 Buy Quiet Occupational**
Template purchasing documentation on disk that is the de-facto UK standard in use throughout industry. Easily implemented and policed, it is probably the single most effective long term noise control measure a company can take.

Noise Control

- 5 More Sound Solutions**
A large collection of low cost noise control "best practice" engineering solutions that do not involve enclosures. This is the ideal starting point for anyone with a noise problem - the solution may already be available "off-the-peg".

- 6 Quiet Fan Technology (QFT)** Updated
A unique technique that eliminates fan noise at source - modifications are fitted inside the fan casing giving a permanent 10 - 20dB reduction at a fraction of the cost and hassle of conventional silencers, enclosures etc - and with no hygiene or maintenance issues.

- 7 Top 10 Noise Control Techniques** New
A new summary of the top 10 simple and widely applicable "DIY" noise control techniques, complete with sketches and material details. They can often provide substantial reductions quickly and cheaply.

- 8 Burner and Combustion Noise Control**
Conventional techniques involve costs that would make a hardened accountant weep! This illustrates the new technology we have developed to reduce the noise from these sources at a fraction of the cost, down-time and disruption involved in applying traditional solutions.

Training

- 9 Noise and Hand-Arm Vibration** Updated
The INVC is the IOSH approved training organisation for occupational and environmental noise and for Hand-Arm vibration. General and industry specific modules are available, covering all aspects of noise and vibration - tick box for a copy of our new and revised training literature. *".... made noise measurement and calculations easy both theoretical and practical sessions were superb the best course I've ever been on"*

Environmental Noise and Vibration

- 10 Environmental Noise and Vibration Services**
A single source for a comprehensive array of environmental services - plus the bonus of state-of-the-art analysis and an unusual degree of engineering expertise that often results in unexpected dividends ...

- 11 Best Practicable Means (BPM) Audit**
An INVC developed simple procedure that enables you to prove whether BPM are being considered to control environmental noise using the best of current technology. Includes case studies and potential cost savings.

- 12 IPPC Management + Buy Quiet Environmental**
Ensure you meet your IPPC Licence noise specifications in the future as cost effectively as possible. The procedure includes template documentation (in digital form - with sound samples) and procedures for inclusion in company policy for new plant and changes to the site.

Hand-Arm Vibration

- 13 HAV Audit and Virtual Assessment** Updated
Benchmark risk assessment and audit with Virtual Assessment techniques to minimise the problems associated with field HAV measurement. Usually reduces costs by c70-80% and time by up to 95%!

- 14A HAV Manual: free summary version by email** Updated

- 14B HAV Manual: full multi-media CD version details**
Comprehensive practical manual covering best practice in HAV management under the new regulations. Previous versions have been standard issue in many companies to audit existing procedures or as a convenient template for HAV policy.

- 15 HAV-Base** Updated
Our new HAV Database contains accurate data for over 1000 tools and facilities to produce graphical summaries and statistics to make risk management simple (buying, hiring, using). This constitutes best practice as the most cost effective way to assess and manage HAV risks.

- 16 HAV-Test** New
Provides simple, quick and automated tool vibration testing in the workshop. Detects tool/maintenance faults to ensure minimum HAV levels.

- 17 Product Noise and Vibration Control**
We have a track record for the rapid development of practical, innovative engineering noise and vibration control measures on anything from vacuum cleaners to power presses, integral design or as retro-fit to existing machines.

Product Testing / Analysis Software

- 18 ProTest Product Testing System** Updated
Flexible hardware and software for the automated production line testing of product noise/vibration (includes sound power, fault detection and diagnosis).

- 19 Noise and Vibration Analysers** Updated
The new **FrequencyMaster** is the state-of-the-art - a simple yet flexible and very low cost PC based noise and vibration analysis system for general use and as engineering tools for product development. We use it ourselves across environmental, safety and engineering applications.

Please Print Your Details - or indicate if there has been a change of address or personnel for our records.

Name: Tel:

Job Title: Fax:

Company:

Address:

..... email:

Other information:



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Check this box for email versions of the information.