

Experts speak out on condition monitoring at international conference

■ 'PEOPLE make or break a maintenance programme. With the move to more specialised equipment, the results of condition monitoring services and devices should be presented in a format designed around the technicians whose responsibility it is to make fast accurate decisions on whether a machine is serviceable and safe.'

*Mr Jack Hessburg, Chief Mechanic,
Boeing Commercial Airplane Group, USA.*

■ 'At least 1% of the capital value of plant should be invested in condition monitoring and it is possible to get a 10:1 return on this investment by way of reduced maintenance costs.'

*Mr Michael Neale, Chairman,
Neale Consulting Engineers, Farnham, UK.*

■ 'Lubricants should be considered as part of the cost of equipment, especially with the modern environment-friendly engines which make enormous demands on the lubricant. Part-synthetic and synthetic engine oils play a significant role in extending the life of both the engines and the lubricants.'

*Professor Malcolm Fox,
Department of Lubricant Technology,
De Montfort University, Leicester, UK.*

These were some of the opinions expressed by world experts at Technology Showcase 1996 in Mobile, Alabama in the USA at the end of April which was attended by Wearcheck technical director Gary Brown and technical consultant Daan Burger.

Attended by over 400 international delegates including a large contingent of Russians, the conference focused on integrated monitoring, diagnostics and failure prevention. This year, for the first time, it was organised by three different disciplines:

■ JOAP (The US Department of Defence's Joint Oil Analysis Programme for

the US army, air force and navy)

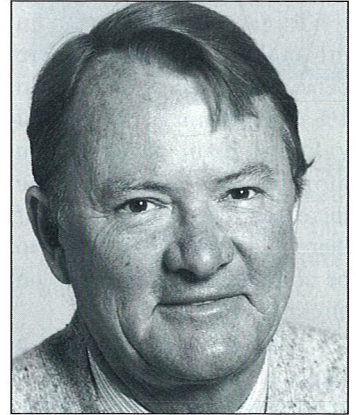
■ MFPT (The US-based Society for Machinery Failure Prevention Technology which specialises in vibration analysis)

■ The University of Wales, Swansea, UK (condition monitoring specialists).

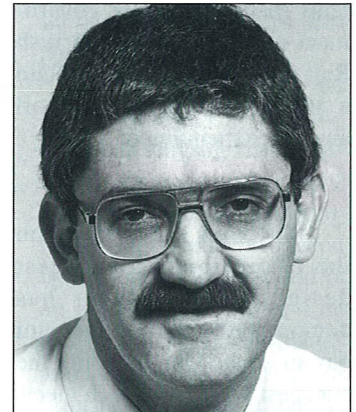
'It is new and sometimes controversial ideas like those quoted above that make conferences like these worthwhile, along with providing excellent opportunities to interact with old and new acquaintances from all over the world,' says Gary.

'Jack Hessburg's paper on the new Boeing 777 diagnostic

programme was particularly interesting. He maintains that, as equipment becomes increasingly hi-tech, it becomes more difficult for maintenance technicians to evaluate test results unless they are involved in the design of the equipment and are able to build in logical, interpretable, condition monitoring features. This is particularly important as equipment design becomes more specialised. Hessburg, who is Boeing's chief mechanic, was part of the design



Gary Brown



Daan Burger

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Positive feedback from customer care survey

RECENT independent research reveals that Wearcheck customers are happy with the high standard of service they receive.

Customers responding to the survey indicated that they were impressed with Wearcheck's speed and accuracy of reporting and their ability to react quickly to customers' needs.

Wearcheck management and technical and customer liaison staff were considered accessible and diagnosis was described as consistent. The

firm's efficiency, competence, professionalism and reliability all rated highly.

One respondent commented, 'Wearcheck gives good value for money and excellent backup, saving us money wherever they can.'

'Regular research is a part of our ongoing efforts to improve quality, technical excellence and customer service,' said managing director, Wally Crawford. 'It also provides valuable input for our strategic and marketing planning.'

team on the new Boeing 777.

'This raises another interesting point - the fact that technical training needs to be developed innovatively to meet the changing needs of the industry.'

Investing in analysis

'Regarding investment in oil analysis, Michael Neale believes that the recommended 1% expenditure of the capital value of plant on condition monitoring should be increased to as much as 5% if there is a high safety factor to be considered, for example on aircraft,' says Gary.

'Also, whereas we cite a figure of between 5 and 7 to 1 as a reasonable return on the cost of oil analysis, he maintains that some major government organisations like British Rail and Canadian Rail obtain a 10 to 1 return on their oil analysis expenditure.'

Synthetic oils

'Malcolm Fox's work on the lubrication of the latest design diesel engines has demonstrated that it does not pay to economise by using the cheapest lubricant which meets the manufacturer's requirements. It is more cost-effective to use the best lubricant the oil company recommends.'

'Equipped with a laboratory full of engines donated by major engine manufacturers and oil companies, Fox is researching the pressure these environment-friendly engines place on lubricants, particularly the thin film of oil between the rings and the cylinder. Because the oil consumption of these engines is low to reduce emissions, and because the oil rings have been raised to prevent excessive exhaust emissions, the oil works longer and harder, systematically depleting the additive package.'

'Although the engines have been redesigned to retain more oil in the area behind the rings

and refined cross-hatching on the cylinders has reduced engine wear considerably, Fox maintains that the quality of the lubricant remains an important factor in prolonging the life of these engines.'

After the conference Gary and Daan spent a morning at the JOAP Technical Support Centre at Pensacola (previously visited by Wally and Lesley Crawford in 1975) which sets the oil analysis policy and undertakes quality control for all of the US armed forces and government agencies.

Standardise

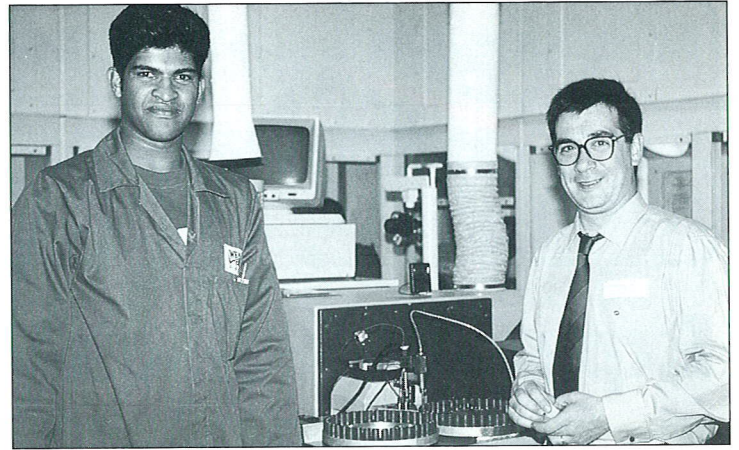
'Although the laboratory only analyses between 50 and 60 samples a day they are responsible for developing new techniques and evaluating new equipment, their most recent project being the improvement of FT-IR testing in conjunction with Bio-Rad,' says Daan.

'Their approach is to standardise on equipment that can be used all over the world in temporary labs and on aircraft carriers without special chemical and flammable gases.'

Daan went on to complete Allied Signal Aerospace's three-day filter analysis course for Garrett jet engines in Phoenix, before flying to Canada to visit Pratt & Whitney in Montreal with a view to gaining accreditation. He ended his trip with an in-depth tour of the Canadian Wearcheck operation.

Advanced

Gary and Daan agree, 'This trip has again confirmed that our laboratory instruments and technology compare favourably with the most advanced available internationally. Our independence and, to a certain extent our geographical isolation, have enabled us to evaluate all the techniques available around the world objectively and to select the best for South African conditions.'



Jesus Terradillos Azqueta, director of Oiltech Analysis - the Spanish member of the IWCG - inspects Wearcheck Africa's Pinetown laboratory with lab assistant, Shane Reddy.

Competition is strong in the Spanish oil analysis industry

WEARCHECK Spain is situated in the heart of the Basque country in an industrial town named Eibar renowned for the manufacture of weapons, machine tools and sewing machines.

Here, it operates the Wearcheck Iberica programme under the name of Oiltech Analysis, which is part of the respected Tekniker group of high-tech research and development companies.

Formed in 1990, Oiltech performs oil analysis for companies in Spain and Portugal.

'About 75% of the oil analysis market is dominated by the big oil manufacturers,' says Oiltech director, Jesus Terradillos Azqueta. 'We compete for the remaining 25% of business along with a number of other independent companies.'

Oiltech, which processes 10 000 oil samples annually, was bought by the Tekniker group in 1993. The group employs 130 people involved in research and development work aimed at developing practical solutions for the manufacturing industry, involving a range of activities from mechatronics to surface technologies.

The group has extensive experience in design and pro-

cess techniques including rapid prototyping, computer-aided process planning and the integration of technologies used in design and manufacturing. It also has considerable expertise in the design and management of production systems and automation as well as the diagnosis and maintenance of manufacturing systems.

From 1990 to 1993 Tekniker initiated an ambitious European project with companies in Greece, France and Spain to develop an expert system of monitoring wear and predictive maintenance in mechanical elements named TESSTEK.

'Being part of the Tekniker group means that we have direct access to the full spectrum of the group's resources and advanced technology,' says Jesus.

Oiltech has maintained close contact with Wearcheck companies since acquiring the Wearcheck programme from the Belgian operation in 1990.

'Being exposed to the workings of other companies in the International Wearcheck Group has been of great assistance in evolving marketing strategies and refining operating procedures,' says Jesus.

Developing human resources

A SOCIAL SCIENCE degree from the University of Natal and seven years of corporate experience have given Claire Payne, Wearthcheck's new human resources officer, a solid grounding in her field.

All staff-related matters fall under her domain, from staff development and career path planning to external and internal training, the payroll, recruitment, industrial relations and social welfare.

'It is most satisfying to apply the knowledge that I have gained through my studies and past work experience,' says Claire.

After spending three years in the human resources department of Mondi Paper, Claire took an extended trip around Europe and the Comores. On her return to South Africa she served as human resources manager at the Trade Centre, south of Durban, before pursuing her interest in finance and taking responsibility for the municipal payroll at the Borough of Pinetown.

Claire predicts 'exciting



Claire Payne

times ahead' for Wearthcheck's employee training and development programme.

'I plan to monitor the programme closely and map out a specific training and development plan for each employee. Depending on the skills level for the positions currently held by employees, internal or external training will be offered to individuals where necessary.'

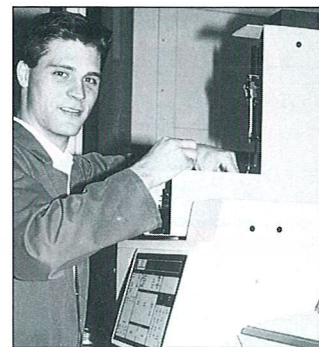
Born and bred in Durban, Claire grew up sailing with her father, both socially and competitively. She also enjoys running - 'anything under 10 km!' - and has a strong interest in aromatherapy.

Combining chemistry with quality

GREG MORSE, appointed as Wearthcheck's chemist earlier this year, is thriving on the challenges of taking responsibility for quality control in the Pinetown laboratory.

This involves ensuring that all instruments are correctly calibrated and in perfect working order so that Wearthcheck's high standards of accuracy are maintained at all times.

Born in Pietermaritzburg, Greg completed his schooling in the United Kingdom, returning to South Africa in 1989 for his tertiary education. He graduated with a National Diploma in Analytical Chemistry from the Natal Technikon, after completing his final practical year as a junior chemist with Wearthcheck last year.



Greg Morse

'I have learned a great deal since I joined Wearthcheck, especially the ability to use my time productively,' he says.

Greg's passion for chemistry is complemented by a strong interest in electronics and computers which has proved to be invaluable in his current position.

In his leisure time he enjoys a variety of sporting hobbies, ranging from running, gym, cycling and indoor soccer to watching rugby. He is also fascinated by European history and is an avid model-builder - he has built several aeroplanes and is working on a set of figurines for a war game.

Check Wearthcheck out on the Internet

INTERNET users will be interested to know that the International Wearthcheck Group (IWCG) now has a World Wide Web Site providing a wealth of useful information on the eight member companies, including services offered, training opportunities, technical data and publications. It also offers an easy link to other Web sites on tribology, oil analysis and preventive maintenance.

The address is:

<http://www.wearthcheck.com/>

This will take you to the IWCG home page which offers access to each member compa-

ny. To access the home page for a particular company select the International Group link which reveals a world map. Click anywhere in a red area on the map to take you to the home page of the company in that region. To reach the Wearthcheck Africa home page, click anywhere in Africa.

There is an e-mail link for comments and suggestions at the bottom of every page - any ideas are welcome to make the site as helpful as possible.

Anyone wanting to e-mail Wearthcheck's Pinetown laboratory can do so on:

wearthk1@sprintlink.co.za

The leader in oil analysis.

WEARTHCHECK

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Infocheck can run on Windows

INFOCHECK users with Windows on their PCs can organise to run Infocheck under Windows and so gain a number of convenient features:

- You can swap between tasks by using the ALT+TAB keys, without having to exit InfoCheck.
- You can configure your printer using the Windows environment.
- You can add InfoCheck to any program group such as Applications.
- You can add InfoCheck to any existing application button bars like Microsoft Office's application button bar.

If you are very familiar with both DOS and Windows and you would like a step-by-step guide on how to run Infocheck under Windows, fax Jill Durant or Simon Robertson on (031) 700-5470.

Infocheck training course for Cape Town

A THREE-DAY Infocheck training course will be run in Cape Town from 18-20 September.

Numbers are limited, so please book as soon as possible before the cut-off date of 16 August. Phone Jill Durant or Melanie Hynd on (031) 700-5460.

New sample bottle and postal container

FROM July onwards Wearcheck's sample bottles and postal containers will have a new look. This is to comply with new postal regulations as the Post Office switches from mass to volume-based charges for postal items.

According to managing director Wally Crawford, the need for a new design provided an ideal opportunity to develop an improved product with a number of benefits.

Smaller sample

'Although the new plastic is more expensive, we have been able to avoid a price increase and reduce transportation costs by producing a smaller bottle and outer container,' he said. 'This is in line with the trend towards micro-analysis which has reduced the amount of sample required for testing.'

The new bottle and cap provide a leakproof closure without the need for an insert, whilst retaining the same thread to fit the locally manufactured and imported sample guns. The 'O' ring seal in the imported (red) gun should ideally be replaced with a thinner one more suited to the new bottle and this will be supplied initially with all new orders.

Sensitivity enhanced

Sensitivity of sample measurement will be enhanced considerably as the new flat bottomed bottle can be accommodated on the particle quantifier equipment without the sample being decanted first.

Environment-friendly

Designed to be environment-friendly, both the bottle and outer container are reusable and recyclable.

The outer postal containers will also be used for the courier kits in future for ease of handling.



Customer services officer Melanie Hynd compares the new improved sample bottle and postal container (left) with the larger one it has replaced.

1996 Technical Training Courses

Date	Course	Venue
6 August	2	Pinetown (full)
7-8 August	3	Pinetown (full)
25 September	2	Johannesburg
26-27 September	3	Johannesburg
2 October	2	Pinetown
3-4 October	3	Pinetown
4 November	2	Johannesburg
5-6 November	3	Johannesburg

Course 2: The applications of oil analysis and an introduction to trouble-shooting. (8h30-16h30) Cost: R360 incl. VAT (Wearcheck customers); R500 (others).

Course 3: The technical management of oil analysis and lubrication. Cost: R690 incl. VAT (Wearcheck customers); R900 (others).

For bookings please telephone Melanie Hynd on (031) 700-5460 or Rina Vice on (011) 455-3342.

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