



FLUID TALK

The Official Newsletter of the
Fluid Power Society of Western Australia Inc.

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Inside This Issue

- 1** • Visit to Fraser Diving International
- 2** • Presidents' Prologue
• Calendar
- 3** • Inside Technical Training
• All our Yesterdays
- 4** • Filtration Overview
- 5** • Filtration Overview
• Advertise with FPS
- 6** • Christmas Party
• Word from Our Sponsor
• New Members
• Movers & Shakers



Members inspecting the Remora Subsea Rescue System

Visit to Fraser Diving International

On Wednesday 27th October about twenty FPS members accepted the invitation to visit the Osborne Park headquarters of **Fraser Diving International**. The invitation provided a unique opportunity for a tour of the Collins Class Submarine **Remora Subsea Rescue System**.

Peter Cavanagh (SERVS and ROV Manager) met each member as they arrived and guided them upstairs for introductions, refreshments and a catch-up with old acquaintances.

The evening commenced with a power point presentation narrated by Peter that embraced the history, structure and capabilities of Fraser Diving and the *Remora* Subsea Rescue System. *Remora* is a purpose-built system consisting, essentially, of a diving bell with a Remote Operated Vehicle (ROV) built around the bell and manipulated by a ROV Pilot from a control centre located on the deck of the mother vessel.

Members also inspected other specialised attachments and equipment associated with the system such as decompression chambers, dedicated lifting equipment, medical treatment facilities and a special attachment that connects to the escape point on the Collins Class Submarine.

The Remora System is on call 24 hours a day and 365 days a year and is designed for operational deployment to the rescue site anywhere in the world from Osborne Park within 24 hours. Other 'friendly' countries also have access to the system should the need arise. It is good to have the technology and equipment available to rescue submariners but let's hope it remains actively inactive!

On completion of the presentation members were taken downstairs into the *Remora* storage area where all aspects of the *Remora* ROV were inspected.

An interesting aspect of the underwater hydraulic systems design is that all systems are depth compensated to automatically regulate the internal pressure of all hydraulic components to be approximately one bar higher than surrounding seawater pressure. This prevents the ingress of seawater into the hydraulic system through seawater/hydraulic oil interface sealing surfaces. The corrosion and operating problems that would result from seawater contamination of the hydraulic systems doesn't bear thinking about!

Some FPS members, who were not claustrophobic and did not mind getting underneath the ROV, climbed up and had a look inside the diving bell and viewed where the rescued personnel are housed once they leave the escape hatch of the Collins Class Submarine.

Peter Cavanagh and **Nick Duce**, the Base Manager and Senior Technician, acted as guides and Nick, with his specific technical knowledge of the system, explained the operation of the many aspects of *Remora* and answered questions. For some of people, it was the first opportunity to get close to a ROV and inspect the highly specialised technology. It also highlighted the fact any hydraulic technician who services this type of equipment is required to be multi-skilled - particularly in the area of electro-hydraulic control.

Following on from the ROV inspection, members moved to the decompression chambers that are used to decompress rescued personnel back to atmospheric conditions following a subsea rescue.

The last part of the system that was inspected was the *Remora* ROV Launch and Recovery System (LARS). Peter and Nick explained how the lifting system is unfolded and assembled by the Fraser Diving personnel in preparation for launch and recovery of the *Remora* ROV.

At the conclusion of the tour, members returned to the meeting room where any remaining questions were answered and the refreshments that were kindly provided by Fraser Diving were finished off.

FPS of WA President, Tim Bailey, then thanked **Fraser Diving International**, **Peter Cavanagh** and **Nick Duce** for providing their time and knowledge outside their normal working hours and for organising the event. **The FPS of WA also thanks Mr Troy Holford (Director and General Manager) of Fraser Diving International** for giving his consent in allowing the site visit.

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Presidents' Prologue

By Tim Bailey

And so we come to the last newsletter of 2004! I'm sure that this year has only been six months long. The probable reason for this is that so many things have been happening - especially with respect to the FPS of WA.

As reported extensively in the last newsletter, the visit of your vice president, Barry Catanach, to the annual meeting of the International Fluid Power Society (IFPS) has resulted in exchanges of communication

between the IFPS and the FPS of WA relating particularly to how the extensive organisation and facilities of the IFPS can assist in improving fluid power training in Australia.

The November meeting of the General committee of the FPS of WA unanimously approved a statement that: '.... **The committee agrees in principle that, subject to the receipt of further information from and negotiations with the IFPS, the FPS of WA should become a chapter of the IFPS to be known as the International Fluid Power Society of Australia...**'

The December meeting of the General committee of the FPS of WA considered further information that had been provided by the IFPS with respect to the statement above and **the committee has unanimously decided to move forward in accordance with that statement.**

All members of the FPS of WA will receive a document with their invoice for membership subscriptions in January 2005 that will provide a summary of the decision of the General committee outlining the considerable benefits that will flow to the FPS of WA through becoming the *'International Fluid Power Society of Australia'*.

Not the least of these benefits is access to the extensive training material and systems of the IFPS that melds in very satisfactorily with the FPS of WA's stated intention to become very actively involved in fluid power training in our efforts to rectify the current fluid power training vacuum that exists in Western Australia and Australia generally.

In parallel with the IFPS training systems that we will be able to access as IFPS Australia, we believe that the High Pressure Hose Assembler (HPHA) registration/accreditation will be recognised by the IFPS parent body and promulgated throughout that system.

On the subject of the HPHA registration system, **I am very pleased to report to you that as an December 1st this year, 29 Western Australian people associated with a prominent specialist hose and fitting company have been assessed and are ready for registration.**

The most important aspect of this is that anyone requiring the services of hose and fitting specialists now have access to 29 people, who have been independently assessed by a FPS of WA approved Registered Training Organisation (RTO), as possessing the skills and knowledge required to competently assemble and provide high pressure hose assemblies.

You will recall that the impetus to develop the HPHA registration system effectively came from the disastrous fire on HMAS 'Westralia' a few years ago. As the numbers of people in the hose and fitting industry who become registered under the HPHA registration system increase, so the chances of another and similar disasters will reduce. **Many other benefits such as fewer faults in hose assemblies resulting in less failures, lower costs, less wastage and less downtime will be enjoyed by the clients of FPS of WA, HPHA registered people.**

Although many of us find the lead up to parliamentary elections very boring, one policy statement of the recent Federal parliamentary elections caught my attention and, almost miraculously, has already been announced as being acted upon! The policy statement referred to is that of our Prime Minister, John Howard, in promising to establish Federal technical training colleges in places of need.

Western Australia is to be the recipient of one of these technical colleges and, most significantly, the policy statement includes industry representation in the management of the College.

Given the current inadequacy of government funded training in fluid power in Western Australia, the FPS of WA is registering an interest in being involved in order to secure the best possible funding and allocation of services to reverse this inadequacy. You will read more about this in an article on training elsewhere in this newsletter. I strongly encourage you to contact any of your committee with your statement of interest in and support for the application.

As I mentioned at the opening of this article, it's hard to believe that Christmas and new year is going to happen in about a week but it is with sincere pleasure that I extend the good wishes of your committee to every member of The Fluid Power Society of Western Australia and your families for a very joyous Christmas and a happy and prosperous new year.

With best wishes for Christmas and the new year..... Tim Bailey

Events Calendar

**First Wednesday of Each Month
General Committee Meeting**
AMTC Wembley

The Fluid Power Society general committee meets on the first Wednesday of each month except January. Members are always welcome! Contact the President, Tim Bailey, for details of the meeting location and time. Contact details are on the last page of this newsletter or on our website:

www.fluidpowersociety.com.au



For more details on upcoming events refer to our website

www.fluidpowersociety.com.au



**Wednesday 9th February 2005
Technical Evening**
Caterpillar

Members are invited to Caterpillar's premises to view their training facilities and Haulpak Simulator.

Inside Technical Training

By Barry Catanach

Would you ever, in your wildest dreams, imagine having to sign your name up to 200 times in an apprentice's training log book?

Apparently this is the case based on information from experienced lecturers who have seen and who have no choice but to accept the many changes to the national training system. For all the positive outcomes, the Competency Standard Units - or CSUs as they are commonly known - have accomplished, the ascendancy has been lost to the increasing administration requirement of the system.

One can only marvel at the thinking and the decisions of the select committees involved in adopting these inefficient processes.

The Metals and Engineering training package competency standards under the Critical aspects (Evidence guide) states that:

'this unit should be assessed in conjunction with other specialisation or core units and not in isolation.'

It seems logical that once you have been able to demonstrate competence and addressed the criteria of each element, you should only need one sign off point on a completed competency. Surely a circle of the criteria or tick box would have been more manageable for administrative purposes?

Having to sign every criteria point increases the possibility of errors - or even fraud. If administrators want to complicate these documents, let *them* perform these tasks and let the lecturers get on with the delivery of training and the entering of results in the most efficient way possible.

Recently I was invited to be part of a major company's apprentice program interview panel. Sitting on this panel made me realise that there is a talented pool of young people who want to make engineering their career of choice and that we will badly need these young people to enter engineering trades to sustain economic growth in our industry.

Taking on an apprentice is a wise investment for any employer. Even though the returns are not immediate, the longer-term dividends are returned many times over when a resource of well-trained tradesmen and technicians is created.

Expressions of interest are out for suitable parties to take on the role of managing the proposed Australian Technical Colleges as announced by the Prime Minister, John Howard, during the recent federal election campaign. Reading the advertisement is rather interesting as it encourages industry bodies to be part of the decision making process in the proposed colleges management structure.

The Society is canvassing to be part of the new Australian Technical College scene, which I believe, should bring benefits to the fluid power industry in the immediate future.

The Society is also acting on recently developed opportunities to expand the knowledge network of The Society by establishing links with the International Fluid Power Society (IFPS). This cooperative arrangement with the IFPS will increase our capabilities to support the fluid power industry through training institutions and, where applicable, deliver our own fluid power training.

It will be interesting to see if any of the existing technical colleges put in a tender to become an Australian Technical College. This is an ideal opportunity for the federal government to introduce true competition into the training market and displace the pseudo-competitive structure that prevails at present. There would not be an opportunity to double-dip between state and federal funds, in the current political climate, so that there will be no going back for the institutions that nail their colours to the Australian Technical College mast.

The Society encourages serious training providers to collaborate with The Society to give their training business greater credibility and assist in ensuring greater utilisation of all of the fluid power training equipment that currently exists in TAFE colleges. Such collaborative effort between all owners of fluid power training and testing equipment in WA would make some significant commercial fluid power test rigs available for training purposes.

This is an excellent opportunity for all fluid power businesses and institutions to support The Society's drive to improve fluid power training nationally. Please consider this initiative and provide your feedback by contacting me or committee members listed on the back page of this publication indicating your desire to be involved in The Society's registration of interest in being part of the Australian Technical Colleges management structure.

Remember! Learning is life long.

All Our Yesterdays

This picture was taken at the 1982 Carlisle Technical College Fluid Power Expo some 22 years ago. How times fly! L to R: Geoff Travis, Des Pettit, Simon Devitt.

Editorial Note. Each future edition of Fluid Talk will feature photographs of fluid power people and projects from the past. If you have any similar photographs that would be of interest to our readers - please email them to secoleman@iinet.net.au



Filtration Overview

By Ken Fletcher Jnr

In previous editions of *Fluid Talk* we have looked at the contamination in hydraulic systems and the basic principles of filtration.

This article takes a look at the principal types of filtration available in the market today. With such a large selection of filters available in the market place here are some guidelines to consider when selecting and applying filters:

1. **Expected operational life of the system** - a system built for a single purpose for several days use does not require the same degree of protection from the effects of contamination as a system designed for 10 years of operation.
2. **Components that make up the system** - pumps types such as vane or piston generally require finer filtration than gear pumps. Systems incorporating servo valves generally require filtration below 3 microns in the pilot oil flow.
3. **System fluid type and operating temperature limits** - mineral oil viscosities vary greatly between cold start and maximum operating temperatures. Specialised fluids such as phosphate esters or water based fluids may have special requirements not applicable to mineral oils.
4. **Operating environment** – the types of likely contaminants that have to be removed must be considered.
5. **Customer expectations** - such as system reliability, the cost of down-time, rationalisation with existing filters and elements and the customer's preference for a particular type of filter should also be considered.
6. **Ease and frequency of servicing** - system accessibility and the ability to stop the system for servicing. The larger the size of the filter, the greater the dirt holding capacity and generally longer service intervals.

Filter types available:

Filter transfer units - new oil delivered direct from suppliers is usually not clean enough for direct transfer into hydraulic systems. The method used in transferring new oil into a hydraulic is an intrinsic component in the system receiving clean oil. The greatly preferred and best method is the use of a portable filter cart for transferring new or stored oil into modern hydraulic systems removing particulate and, with suitable filters, moisture from the new oil in the process.



Oil reservoir breathers - have a vital role in preventing the ingress of atmospheric contaminant as system fluid levels rise and fall in the reservoir due to cylinder volume differentials and the effects of temperature and fluid expansion/contraction. Breathers require maintenance and periodic replacement and must have sufficient airflow rating to accommodate the rate of reservoir volume changes. In humid environments, desiccant breathers are an obvious choice as they remove moisture from the entering air and so prolong the life of the fluid and the system components.

Suction filters - can be a strainer in the tank, a tank-mounted filter or in-line mounted filter. Each type has different advantages such as ease of servicing, clogging indication and cost. Sizing, maintenance requirements and the type of pump are important factors when selecting suction filters as pump cavitation and subsequent pump damage and failure are the consequence of getting it wrong.



Continue Page 5.....

Filtration Overview

.....Continued From Page 4



Pressure filters - generally mounted after the pump and able to withstand system pressure while collecting generated particulate from the pump whilst protecting the downstream circuit components. Sizing is generally based on the pump output and should be large enough to not go into by-pass (or indicate by-pass) when the oil is cold. Pressure filters are available with a range of incorporated valves such as by-pass, reverse flow etc together with a choice of different micron rating elements to suit the system requirements. For example, a pressure filter could be used with a 3-micron element with no bypass as a security filter for protecting servo or proportional valves. Clogging indicators give an early indication of high contamination levels within the system that could lead to possible serious component failure.

Return filters - may be either in-line or tank mounted and are best placed to remove contamination returning from the hydraulic circuit and therefore the most common filter found on systems. System knowledge is required for the correct sizing of this filter. Information in addition to the pump output volume may be required for correct selection - such as the maximum oil flow rate of the oil returning from cylinders, other volume surges and pressure spikes. Various micron ratings and indicator options are available.



Off-line filters - when correctly installed will keep the reservoir oil body clean. These filters have some advantages over the other system filters that include a large dirt holding capacity, water removal capability and economical running costs, when using depth filtration, when compared with other types of filtration. Additionally, offline-filters extend the life of other filters in the system. However, offline filters do not provide protection against catastrophic hydraulic system component failures.

As stated in previous editions of *Fluid Talk* it is extremely important to have a suitable combination of the correctly sized filters on every hydraulic system. A good understanding of all the factors involved in selecting the filters is essential if the desired outcome of long, trouble-free operating life is to be achieved.

Information extracted from technical publications provided by Stauff Corporation.

Advertising with the FPS

Your company can sponsor *Fluid Talk*.

For a small cost you can publicise your company with a flyer or brochure that will be included as an insert in the newsletter issue that you choose to sponsor. Your company sponsorship is acknowledged with an editorial in the same edition.

The flyer or brochure that should be A4 size and can be either single or double sided, is distributed to a **targeted audience** at a cost to you of only \$150.

Please contact Stuart Coleman on 9401 6487 to take advantage of this unique opportunity.

Reflections on the Christmas Party

By Phil Bristow-Stagg

The annual Fluid Power Society Christmas function was held on Saturday December 20th at the Hillarys Yacht Club with forty members and guests being treated to an excellent evening in the exclusive 'Reflections' dining and veranda area.

Picture card views across the becalmed marina perfectly capped the friendly and efficient service from Patti and her staff.

Michael Johnson provided an entertaining floorshow. Michael, who describes his act as 'Cool Dancing,' captured the complete admiration of his audience for over thirty minutes with his theatrical talent. His rendition of slow motion running accompanied by the theme sound track from 'Chariots of Fire' was incredible.

The evening provided an excellent opportunity and venue for members of The Society, the fluid power industry and friends to get together and enjoy a very memorable evening.

A Word From Our Newsletter Sponsor *Energy and Mining Training Solutions*

Energy & Mining Training Solutions is a Registered Training Organisation (RTO). The main objective of **Energy & Mining Training Solutions** is to support the operational needs of large and small companies by providing customised training and skills recognition services with an emphasise on fluid power safety.

Energy & Mining Training Solutions provides on-site, cost effective and professional training to meet your specific needs.

Energy & Mining Training Solutions are the specialist provider for The Fluid Power Society of WA HPHA accredited course for the flexible, high-pressure hose assembler industry.

New Members

The Fluid Power Society of WA extends a warm welcome to all new members. Below are listed Fluid Power Professionals and Students who have recently joined the Fluid Power Society of WA.

Owen West - Pneumatics Direct

Brett Williams - Pirtek

Ray Rush - Viscount Plastics

Steward Macpherson - Viscount Plastics

Movers & Shakers

- Two senior executives from Hydac Germany were seen in Sydney accompanied by a high profile hydraulics industry identity. Does this mean there is expansion in the wind at Hydac or something more sinister?
- James Goodhew has left Tyco Motion & Control and joined the Pressure Dynamics team.
- Steve Camp has left Hycon and joined Bosch Rexroth.
- Andrew Holleman has left Bosch Rexroth to return to his native Tasmania.
- James Charles has joined the Hydac team as Internal Sales & Warehouse operative.
- Mike Gorringer has joined the Hydac team as Technical Sales Representative. Mike accumulated extensive experience in the Fluid Power Industry as Service Manager for WA Fluid Power (now Custom Fluid Power) in the nineties.
- Allied Heat Exchangers opened their new premises with an optional seventies style clothes night. We've been told that the Fluid Power Industry invitees kept their gear on, thank goodness!
- Hydair Drives had their annual Christmas staff knees up at the Vines Resort. We understand that the boys played golf while the girls received a massage. What happened after that is secret Hydair business!
- Pressure Dynamics held their annual golf day at the Joondalup Resort and Barry Owen from HMA came away with most of the silverware.



*Wishing All Fluid Power Members a Merry Christmas
and a Safe and Prosperous New Year*

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Accreditation:	Tim Bailey			
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Disclaimer

Whilst the Fluid Power Society of WA Inc., does its best to ensure that any information that it may give is accurate, no liability or responsibility of any kind is accepted in this respect by the Fluid Power Society of WA Inc., its members, its servants or its agents.

The Fluid Power Society newsletter is compiled by Stuart Coleman . Suggestions, ideas and information for the newsletter are most welcome - contact us on 9401 6487 or email secoleman@iinet.net.au