

# Exacting Standards



According to the Civil Aviation Authority; in New Zealand there are about 9000 pilots and 3350 aircraft. More than 4.5 million passengers travel on our main airlines' domestic services and over 2.69 million arrive on international air carriers each year. The safety of them all is overseen by the CAA (Civil Aviation Authority) and as Heat Treatments regularly process aircraft components, we too play an important part in ensuring their safety.

Heat Treatments works for not only the country's largest domestic and international air carrier, but also a number of smaller carriers and local manufacturers..

In order to do this we are required to gain

a 'Part 145-Maintenance Organisation Certificate' from the CAA. On a yearly basis a team of CAA Airworthiness Inspectors visit Heat Treatments to carry out an audit of our systems, processes and equipment.

We are therefore required to ensure that all equipment, furnaces and ovens, used to process aircraft components are calibrated on a regular basis to international standards. We must also be able to demonstrate complete traceability in all aspects of the heat-treatment process.

In essence the 'Part 145-Maintenance Organisation Certificate' means our people are authorised to sign and release to

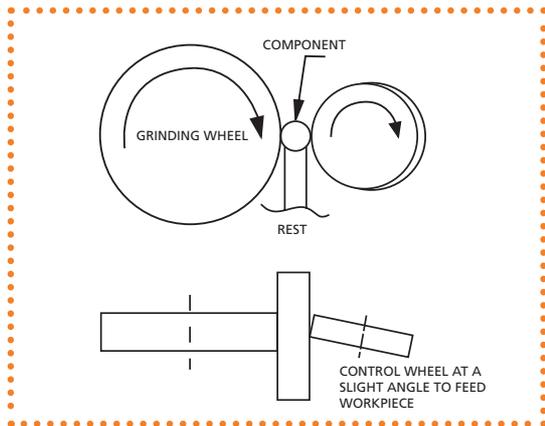
service 'Airworthiness Approval Tags' on all the aircraft components we process.

Obviously in undertaking this type of aircraft work there is a positive flow-on effect in the quality of work and service we provide to all our customers.

So the next time you fly .... You can rest assured that many of the components on your aircraft were heat treated, and some may have been heat treated by us!



# Centreless Grinding : When & Why



In reviewing the responses to last year's survey one question that came up several times in relation to the Machine Shop was – 'what does a Centreless Grinder do?'

So here's our response....

A Centreless Grinder is used to grind pure cylindrical shapes that do not require mounting (i.e. not between centres) . The work pieces are fed through two parallel rotating wheels (i.e. a conventional grinding wheel and a rubberized regulating wheel) with the regulating wheel being inclined at a slight angle to facilitate axial movement (like a screw thread).

Depending on the grinding conditions, the resulting product can be extremely accurate with an excellent surface finish.

## Did you know:

- At heat treatments we regularly receive work from some of our customers without an order and / or instructions on what heat treatment is expected. This consumes a substantial amount of time in terms of following up with the respective customer, and on some rare occasions may lead to work being processed incorrectly. Please ensure that at a minimum you provide us with:
  - The authority to proceed with the work i.e. Purchase order or completed Job Authorisation form.
  - Material used, and description of item, and if known heat treatment required
  - Hardness requirements, or at least the items application, so that we can determine what the hardness should be.
- As heralded in our previous issue, Heat Treatments have now finally discontinued the use of Cyanide Salts in heat treatment processes. As a consequence we are disposing of the balance of our outstanding Salt stock supplies on a first come first served basis – so get in quick as we won't be importing any more!

## We have a winner!

**Congratulations go to John Cooper from Fletcher Aluminium who won the HTL Xmas hamper. Thanks for the feedback John – we hope you enjoyed the goodies.**



# Heat Treatments

QUALITY • SERVICE • EXPERTISE

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### The Heat Treatments Service Team:

Heat Treatments:	Len Allen Dean Gounden	Customer Service Quotations
Technical / Metallurgical:	Adam Walmsley & Ivan Mitchell	
Machine Shop:	Dennis Scotting Brian Thompson John Baird	Estimates & Quotations Production Operations
General:	Steve Askew Kathy Williams Elaine Folau	Quality Co-ordinator Receptionist Accounts Receivable



# Celsius

ISSUE 5

MARCH 2005



Heat Treatments Limited  
Quarterly Newsletter  
Summer Issue

## Service : A key ingredient



A belated happy New Year to everyone! Celsius is now entering its 2nd year and, from the feedback we received from our survey, it appears the newsletter is making progress towards achieving our goal of demystifying aspects of the heat treatment process, and keeping you abreast of other developments in our Company.

In this issue we focus on the role consistent service plays in developing and maintaining long term client relationships.

When quality control guru, Edward Demming, spoke of 'consistency of purpose' he was referring to the importance of aligning all aspects of an organisation to one common goal. In other words, everyone in the chain and every action in the process must work towards the same outcome – an excellent customer experience.

Whilst it is not always possible to achieve Demming's ideal, all of us at Heat Treatments recognise the importance of consistency of purpose in terms of customer service. Consequently we are continually working towards extending this philosophy beyond the obvious (i.e. quality assurance) to encompass all aspects of what we do.

With this in mind, Celsius profiles Waratah New Zealand, who have been a client since the early 70's and who recently awarded Heat Treatments their 'Supplier of the Year' award for 2004. We also outline the standards that we must meet to achieve accreditation by the Civil Aviation Authority. Both articles will hopefully identify for you the ways in which we are working towards 'consistency of purpose' in relation to service delivery.

Fergus Thomson

General Manager

# Waratah New Zealand



**Celsius**  
CUSTOMER  
PROFILE

In this issue Celsius speaks to Waratah's Supply Manager, Noel Sutton about his company, its relationship with Heat Treatments and the importance of managing supplier performance.

## Who is Waratah?

"Waratah New Zealand have been supplying the logging industry with high quality forestry attachments since 1973. Founded by engineer, Dave Cochrane, the company remained privately owned until it was bought in 1998 by Timber Jack, a leading European forestry attachment business. Two years later, when the US based company John Deere took over Timber Jack, Waratah was an important part of the acquisition. Currently we employ around 60 staff at our office and manufacturing facility in Tokoroa."

## What are your key products and where do you market them?

"Waratah manufacture a range of forestry harvester heads, felling heads, booms and cranes. These products are distributed through a world-wide chain of distribution outlets under the Waratah brand. The company's market is primarily export, with the majority of sales going to North America, Australia, South America and to a lesser extent Europe."

## How do you differentiate yourself in the market?

"We invest a significant amount of money into research and development and are always looking at new ideas and innovations. Price and quality are key factors and so is customer service."

## How has the business changed over the years?

"Primarily we have become more efficient. We now have less people turning out a higher number of heads. Most of this has come through the implementation of more professional systems and work practices."

## What sort of work practices and systems have you developed?

"When the company was taken over by Timber Jack and then John Deere, we got the benefit of their experience. In particular I was impressed by the way in which they managed their supplier relationships."



"By using aspects of their supplier management programme we have been able to improve our delivery to our distribution network and obviously this has had a

positive impact on our business."

## Can you outline this supplier performance management system.

"We have developed a rating system for suppliers based on three key elements; quality, price and delivery. On a monthly basis I monitor and measure all suppliers and discuss any issues with them. Then at the end of the year I rank all 50 of the suppliers who provide us with products and award our top 5 suppliers with performance plaques accordingly. Over the period we've used this system we have managed to improve delivery times by over 24%."

## What does Heat Treatments do for Waratah?

"Heat Treatments are responsible for everything from the sourcing of raw materials to the machining and heat treating of around 60 different components. Last year alone they supplied us with around 15000 parts."



We manage this by giving them a forecast of our requirements for the next six months and this is further refined on a fortnightly basis."



## What would you say were the significant factors in the success of your relationship with Heat Treatments?

"Heat Treatments has been supplying Waratah since it was founded and their longevity comes down to their ability to give us a quality product, at the right price and on time. Since we have implemented the Supplier Performance system they have steadily risen up the ranks and last year we named them 'Supplier of the Year'."

*Heat Treatments would like to take this opportunity of thanking Noel Sutton and the team at Waratah for their continued support.*



# A Recipe for Success: General Engineering



General Engineering and the material properties required for such applications is a broad subject. Bearing this in mind we have put together the table below as a general guide to process and material selection for some common General Engineering applications.

For most applications one of the following four materials/processes will be suitable:

## 4140/4340 - Nitrided

- Good in high wear applications, especially sliding actions with little shock loading where high strength is also required
- Low distortion during heat treatment

## EN39b - Carburised

- Very high strength and good wear resistance
- Stronger than nitrided steels
- Good with shock loading applications
- Expect some distortion during heat treatment

## Mild Steel-Case Hardened

- Good in low cost applications requiring some wear resistance
- Low strength
- Good for small components, drilling jigs etc.
- Expect some distortion during heat treatment

## 2767 - Through Hardened

- Very high strength, low wear resistance
- Common for highly stressed components where 4340 isn't strong enough
- Low distortion during heat treatment

GENERAL ENGINEERING		
Application	Main Properties Required	Suggested Material & Heat Treatment
Gears (light duty)	Wear resistance, toughness, dimensional stability	4340 nitrided.
Gears (heavy duty)	Wear resistance, toughness	EN39b carburised
Excavator pivot pins	Wear resistance, shear strength	4340 induction hardened
Excavator bushes	Wear resistance	Hollow bar carburised
Splined shafts	wear resistance, torsional strength, fatigue resistance	EN39b carburised
Bolts & Nuts (grade 8)	Tensile strength, fatigue resistance	4140 or 4340 H&T to 33/39HRc
Chain Sprockets	Wear resistance, medium strength	1045 Case hardened.
Cam Rollers	Wear resistance, shock resistance	EN39b carburised.
Kango hammer tools	Impact resistance.	S1 H&T to 48/50HRc.

Please note that this information is provided as a general guide only and should not be treated as a substitute for detailed technical advice in relation to individual applications. Heat Treatments Limited disclaim any liability for loss or damage suffered from the use of such data.

\* H&T = harden and temper

## Positive Feedback

A big thank you to everyone who took the time to respond to our questionnaire at the end of last year.

On the whole the feedback was very positive and we will be looking to incorporate many of the recommendations made over forthcoming issues.

As noted in the first edition back in April 2004 the goal behind producing Celsius was to raise awareness of the products and services we offer and to endeavour to demystify some aspects of the heat treatment process. So if anyone has any further ideas or suggestions we would be keen to hear from you – simply email [info@heat-treat.co.nz](mailto:info@heat-treat.co.nz) or call us on 09 621 0020

photos

## A Sad Goodbye....

We were very sorry to say our goodbyes to Murray McLeod, who left us on the 8th of March 2005. Many of you would have had contact with Murray over the years, particularly more recently in his role as heat treatments manager. In addition to his many duties, Murray co-ordinated all shop floor activities and compiled quotations which meant liaising with many of our customers.

Murray has given over 18 years of service to Heat Treatments and has accumulated a large amount of experience and knowledge during this time. We will miss Murray, and we wish him well in his new endeavour.

As always when one door closes another one opens, and opportunities for newer staff have been created. In this case Murray's responsibilities will be shared amongst several staff members. Two of them with customer contacts, are Len Allen and Dean Gounden. Len continues with his delivery and transport co-ordination role, and Dean takes over the job of compiling quotations. The team of Ivan and Adam remain at your service to resolve any technical questions relating to the work we do.