



Quality Replacement Turbocharger Parts

ISSUE FOUR



# Melett achieve ISO9001:2000 accreditation



July saw a proud moment in Melett's growth as the company was accredited with the internationally recognised quality standard ISO9001:2000. After rigorous audits and testing of the company's quality systems, the British Standards Institute (BSI) recommended that Melett be accredited as operating in accordance with this international standard.

'Everybody at Melett takes quality very seriously,' explains Ian Warhurst, Managing Director. 'Our mission has always been to fill the gaps in the market by offering turbocharger repair parts to the same level of quality you would expect if they were available from the OE.'

To help achieve and maintain this level of quality, Melett applies strict quality controls with its suppliers and operates full traceability of its critical parts. 'We live in the real World and with over 1500 active part numbers, mistakes can happen even with the best manufacturers. Thankfully it is very rare - but if a problem is detected, our traceability allows us to accurately track and stop the parts reaching your turbos. We prefer to be proactive before having to be reactive.'

Over the past 6 months, implementing ISO9001 has allowed us to review and improve our own systems to ensure we can maintain the same levels of product quality and customer service into the future. We are all very pleased to have achieved this level of accreditation.

**Everybody at Melett takes quality very seriously**

FEATURED IN THIS ISSUE



**Made in China?**



**Melett Joins ADS**



**New CHRA & CHRA kits**



**New Website and 2008 CD catalogue**

*'Melett - Helping the Reconditioning Industry to keep Reconditioning'*

# Made in China?

We are often asked about Chinese manufacturers and products made in China. Many customers have had experience with these parts – here are a few facts.

Garrett, Borg Warner, Holset – infact all the OE's have manufacturing bases in low cost countries like China and India. It is important to understand the difference between OE China and Aftermarket China. China itself is a huge rapidly growing market for turbochargers and as a result, it has developed its own aftermarket demand. The quality of fuel, oil and filters is generally poor so turbochargers have a very short life expectancy. As such, the Chinese aftermarket companies compete to produce the cheapest turbos. This has resulted in many small workshops and foundries setting up production of low spec / low price turbo parts.

## ***If the parts are in a Melett box - you know you can trust them***

Unfortunately, the most important material – and most of the cost in the turbo is Nickel. For example, the turbine wheel head should contain around 65 – 75% Nickel. To reduce cost, many standard Chinese aftermarket turbine wheels use a Chinese grade alloy which only has either 30% - or sometimes as low as 15% Nickel. You cannot visually tell the difference between these parts. In Chinese engines, these turbos may last as long as expected - but try putting these parts into a European turbo and the result is a warranty failure.

Like the OE's, Melett also has some parts manufactured in China although this only accounts for around 14% of products sold. Importantly, the parts are manufactured in quality workshops employing strict quality control methods, production facilities are inspected annually by Melett Engineers to ensure quality procedures are maintained, the material used is correctly specified to ensure equal or better than original OE specification (we generally use 72% nickel alloys 713C even when replacing an OE shaft with lower grade GMR alloy). The parts are manufactured to Melett drawings to ensure they are dimensionally correct and castings are produced on Melett owned tooling. Upon receipt of parts in the UK, the parts are again inspected to ensure both material, dimensions and surface finishes are to specification. 'Melett doesn't just buy parts from the Far East – like the OE's, we have parts sub-contract manufactured in the Far East. There is a big difference between these statements' explains Mark Tindall, Development Engineer'. As a customer, the important point to remember is that if the parts are in a Melett box, they are Melett product manufactured to Melett Quality.

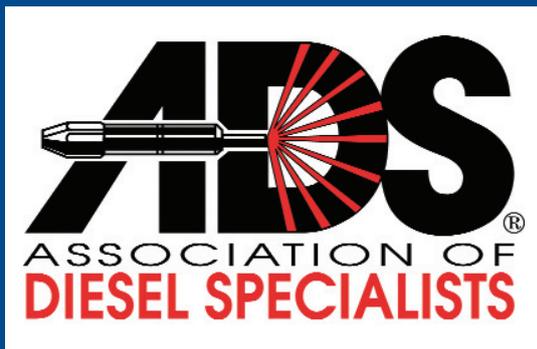


**CAN YOU TELL THE DIFFERENCE?  
YOUR CUSTOMERS WILL**



## MELETT BECOMES A MEMBER OF THE ADS

We were pleased to become members of the Association of Diesel Specialists (ADS) in January 2008 as a parts supplier. We look forward to being of service to its members.



## Make sure it is Genuine Melett Product!!!

Whilst it may sound hypocritical to complain about copying, it has recently been brought to our attention that some companies are buying low quality product and passing them off as Melett parts. As the OE manufacturers are supplying less parts to the independent aftermarket, the Melett brand has grown and we are now recognised in the World as a quality alternative to the unavailable genuine parts.

Where practical, we are adding our brand mark to castings and tooling so that you can be sure it is definitely Melett parts you are getting. You should also insist that any parts you purchase are in their original Melett packaging.

# VNT PARTS

## Identification and New Specification

In June 08, we launched our range of new Generation VNT repair kits. After thoroughly analysing the parts, we have concluded that most of the new parts are improved designs so are dimensionally interchangeable and can be used to effectively perform an 'upgraded / improved' repair. Here is our quick guide to the main changes...

**Journal Bearings** There are 2 main designs with the most important differences being the length of the internal bearing surface.

**Slender shaft GT15/I7 Turbos** The original GT15 bearing (Garrett No. 433123-2 / Melett 1102-015-100) has an internal bearing surface length at compressor side of 3.2mm and turbine side 4.6mm. On new generation turbos, the bearing has an internal bearing surface length 4.6mm on both sides. The material is different and the oil grooves and holes are also slightly different. Melett offers this new style bearing as part number 1102-015-104. This bearing is also used with straight shaft turbos in the GT15-18 range and can be used to replace the old style bearing.

**Straight Shaft GT20/I25 Turbos** On the larger turbos in the VNT range, the bearing has longer internal bearing surface length at both sides of 5.6mm. On 2nd generation turbos, this bearing has not changed dimensionally but the material has been improved. Melett offer a replacement for this straight shaft bearing using the latest material specification as part number 1102-015-101.

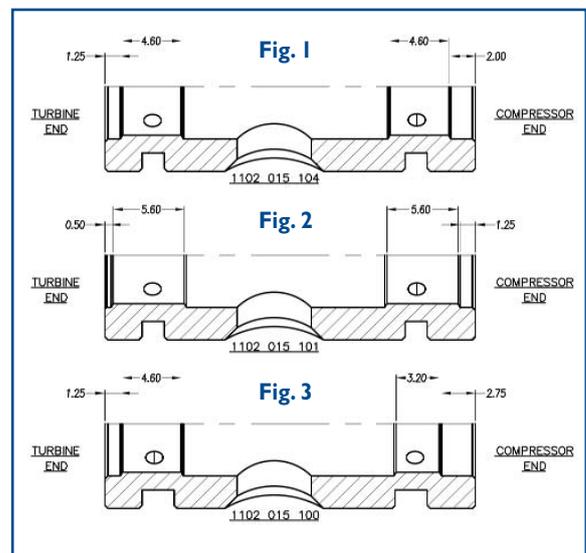
This information is meant as a general guide. It is important to identify which bearing is in the turbo when stripping and replace with the same style. The easiest way to identify the bearing is by measuring from the side face to the start of the internal bearing surface. This information is shown on fig. 1 to 3.

**Thrust Bearings** We are now seeing the new generation thrust bearing for VNT in a lot of turbos. With a lack of any official description from Garrett and a familiar shape outline, we would like to call these the 'Batman' Thrust bearing but for fear of a breach of trademark with DC Comics, we have decided to remain sensible and call this the 'oil grooved 6 pad' thrust!

These thrust bearings are a significantly improved design as they are manufactured by the hot forging process as opposed to stamping or sintering (powder metal). Hot forging produces a more robust blank by re-forming the grain in the material into the finished shape and also allows the use of a high strength alloy.

Why make it stronger? If the product is stronger, it can carry a higher thrust load over a smaller area. This allows the thrust area to be reduced giving less friction and faster response. Beware of sintered versions of this thrust bearing on the market – the sintered process cannot carry the same loads and may cause reduced life and warranty issues. Melett thrust bearings are produced using the same hot forge process as the original parts.

The new thrust design currently has either small thrust pad area (11.8mm) or large thrust pad area (14.8mm). We have also seen a third variation on the very latest turbos which is inbetween these sizes but these should not be seen in the aftermarket in any volume for one or two years yet.



Both small pad and large pad thrust with their associated thrust parts are now in stock at Melett. We recommend using the following repair kits.

SMALL PAD THRUST	
1102-015-770	Thrust Kit VNT (Oil Groove Thrust - Small Pad)
1102-015-771	Repair Kit VNT (Oil Groove Thrust - Small Pad / 6.5mm ID Brg)
1102-015-772	Repair Kit VNT (Oil Groove Thrust - Small Pad / 104 J-Brg)
LARGE PAD THRUST	
1102-015-780	Thrust Kit VNT (Oil Groove Thrust - Large Pad)
1102-015-781	Repair Kit VNT (Oil Groove Thrust - Large Pad / 104 J-Brg)
1102-015-782	Repair Kit VNT (Oil Groove Thrust - Large Pad / 101 J-Brg)
1102-015-783	Universal Repair Kit VNT (Oil Groove Thrust - Large Pad / Both J-Brg)



# New from Melett CHRA and CHRA kits

Melett now offer CHRA for a range of turbo models. We decided to offer the parts in two different formats giving you the choice.



**CHRA Assembly Kit** – You have the workshop, you have the balancing facilities – why do you need us to build and balance CHRA and add the cost to the price? You don't – so we now offer all the parts to build a complete CHRA at a very attractive package price. You can be confident about the quality because you have assembled and balanced the CHRA. It will contain your serial number and you will have VSR records. We are confident that you will not have problems during assembly and balancing so we offer a no argument replacement warranty if you experience any problems during assembly or balancing.

**CHRA Assembled and balanced** – You have the workshop but you don't have either the capacity or maybe the VSR equipment to build and balance the CHRA. To provide a solution, we have teamed up with experienced - Turbo Technics in the UK to provide an assembled and balanced CHRA. Each CHRA is supplied with serial number and VSR balance print out and carries a 12 month guarantee.

Currently we offer TD04 and Toyota CT26 CHRA. Later in 2008, we will be launching K03 and GT15 with T2 following in early 2009.

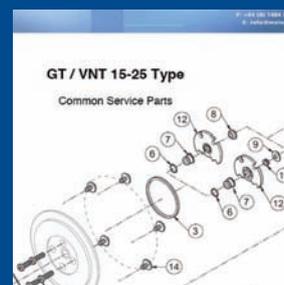
## Rotor Assembly Kits

**Rotor Assembly Kits** Similar to the CHRA kits, we now offer a range of rotor kits. These contain the shaft, comp wheel, seal plate and internal parts to repair a CHRA all in one kit. As a packaged price, they are significantly cheaper than buying the parts individual so provide a cost saving. Contact Melett Sales for further information.



## 2008 CD Catalogue and Website Update with Calibration Information Added

Our new Turbo Parts Catalogue and Turbo Build Database version 5 is currently shipping and contains updated catalogue sections which include new detailed exploded views of VNT / KP35/39 turbos and more detailed part information.



Our popular Buildsheet Database has also been greatly improved. The number of turbo build sheets available has been increased from 7000 to over 15,500 - but more importantly, we have added a turbo calibration section which includes VSR balance data and actuator settings.

The website is always the most up-to-date place to search our database. This has also been updated and now reflects the same layout as the CD software.

We have gone to a lot of trouble to make the database as flexible as possible. You can type any part number / any incomplete part number / any component part number and enter them with or without dashes, comers, spaces etc. If it's in the database, you will get a result. Try it out – you will be amazed at how much information is at your finger tips. [www.melett.com](http://www.melett.com)



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