

### **Turbo Renesis Failure**

The following information has been compiled from the ongoing R&D at Pettit. Since late 2003 when we opened the first failed turbo Renesis, we have been testing and evaluating our modifications to improve performance and reliability for both the naturally aspirated and forced induction Renesis setups.

Much of this knowledge came from preparing the engines for the **Diasio** D962R Sports Racers as well as engines for our customers worldwide.

More knowledge came with the **Diasio** turbo model, it now produces 370whp @12psi and after several updates the latest version is performing well with several race wins to back it up.





Some extreme failure examples (pictured below) are from engines which had turbo systems designed for low boost but then run higher boost, this raises back pressure ratios as high as 3:1 compressing hot exhaust gasses between the exhaust port and turbo, superheating the exhaust port areas as well as delicate internal parts like side seals, corner seals and even the springs that hold them seated. These conditions also cause the oil metering systems protective lubricant to vaporize increasing friction and wear, which generates more heat, friction and wear eventually causing hard starting and / or a weak idle condition on hot engines. At this point it is a good idea to send in the engine before a catastrophic failure leaves you stranded and ruins some expensive parts.



The following pictures from turbo engines show results of before and after the modifications as tested on a 350whp turbo Renesis, after several road races in a **Diasio** Sports Racer, the left picture shows an unmodified housing with obvious seal leakage at the leading plug and minor axis area. The right picture shows little or no blow by in the same area, the modifications have made a significant improvement in this area, adding longevity while maintaining top performance.

