



Running-in Reconditioned Diesel Engines

The most critical period during any engine's life is its initial stages of operation. Running in usually takes place in two parts, namely the removal of new bearing surface roughness followed by the bedding of such surfaces by increasing contact area and thus minimising parasitic power losses.

The practice of allowing an engine to idle or "run in gently" during the initial stages following major overhaul has been found to be harmful and creates conditions likely to promote cylinder bore glazing. Such a condition occurs due to the accumulation of combustion by-products such as iron oxides, graphite and other chemicals on critical bearing surfaces, which form a hard surface coating or skin. The process usually occurs before the piston rings can generate a load-carrying surface or optimum oil control capability and is actually accelerated by light load conditions.

As diesel engine manufacturers have become more familiar with the reasons for this phenomena, running in schedules have been revised and it is now generally recommended that after initial start-up, a maximum of only five minutes be allowed to check for oil/water leaks and oil pressure etc. Under no circumstances should a newly reconditioned engine be allowed to idle for longer than this period. The load should then be progressively increased up to 60% of maximum power for a period of sixty minutes. One major engine manufacturer recommends up to 80% of maximum power for the first 500 miles. However, where manufacturers' running in schedules are available they should be strictly adhered to.

Modern engine lubricants contain significant quantities of anti-wear additives, and can thus give rise to bedding in problems if used as "first fill" after engine reconditioning. Most oil companies now market running in oils which are specifically recommended for use during the critical running in period. These are designed to promote a controlled initial wear of cylinder components, thus generating optimum bearing relationships and minimising bore glazing. Reference should always be made to the manufacturer's instructions for their use.