

Tech Tips: "Bandage" for Racing Components

Most racing components are designed to be as light and compact as possible. Unfortunately, metal components can sometimes fail due to oil starvation or metal fatigue, and racing teams often lack the time to redesign and retest before the next race or cannot modify the parts due to regulations.



WPC Metal Surface Treatment

WPC Treatment is a surface treatment process that enhances oil retention and fatigue strength in metal components. This micro shot peening process creates high residual compressive stress beneath the surface, alters the crystal structure of the metal, and leaves fine dimples that serve as oil retention pools, helping to prevent oil starvation. WPC does not alter the dimensions of the parts, so clearances remain unchanged.



This treatment improves performance and reduces wear by minimizing friction, while also enhancing the durability and reliability of metal components. WPC treatment helps prevent cracking, breakage, chipping, pitting, fretting, galling, seizing, and overheating caused by friction.

WPC can be applied to any disassembled metal components, including pistons, piston pins, piston rings, valves, valve springs, valve spring retainers, lifters, rocker arms, camshafts, cam caps, crankshafts, transmission gears and shafts, shift shafts, shift forks, synchronizer rings, hubs and sleeves, dog rings, final gears, differential gears, drive shafts, washers, collars, and various bearings, such as transmission bearings, hub bearings, and CV joints. WPC treatment can even be applied to softer materials, such as plain engine bearings.



Clutch plates, limited-slip differential plates, automatic transmission clutch plates and one-way clutch sprags and races are excellent candidates for WPC treatment, as it makes engagement smoother and reduces chattering, which can otherwise impose impact loads on other components.



Finish the Race with WPC Treatment

While WPC cannot repair damaged parts, it can serve as a temporary "bandage" for racing components. Although it may not be a long-term solution, it can provide an interim fix to help complete a race or even a race season.

The turnaround time for WPC metal surface treatment is typically quick, usually within four business days. The WPC Treatment Company also offers an expedited processing service by appointment for "Emergency Care," which can be completed the same day.

