

SB039

Testing of Nitrided Surfaces

Many crankshafts are Nitrided (Tufftrided) on the main and conrod journals to reduce wear and increase strength. This is most common in turbocharged engines. Determining if a crankshaft still has sufficient Nitriding present for reuse when reconditioning an engine or if a crankshaft needs to be re-Nitrided after regrinding, requires testing the surface with an ammonium cuprous chloride solution.

1. Use an organic cleaner to thoroughly clean the crankshaft. There must be no traces of oil on the surfaces to be inspected.
2. Prepare a 5 - 10% solution of ammonium cuprous chloride (dissolved in distilled water).
3. Use a syringe to apply the solution to the surface to be inspected.

NOTE:

Hold the surface to be inspected horizontal to prevent the solution from running.

Do NOT allow the solution to contact the shaft within 10 mm of the oil feed holes.

4. Allow the solution to sit on the crankshaft for between thirty and forty seconds.
5. If there is no discolouration after this time, the crankshaft is usable without further surface treatment
6. If discolouration appears - the surface being tested will become a copper colour - the crankshaft must be re-Nitrided or replaced.
7. The crankshaft surface must be cleaned immediately after completing the test with volumes of clean water or with steam.

NOTE:

The ammonium cuprous chloride solution is highly corrosive. It is imperative that the surfaces being tested are cleaned immediately after completing the test.

Care must be taken to ensure the solution does not contact the eyes or skin.