

VOLVO

T13 Bearing Roughness

Pat Holmes

Part Number:

Assigned by:

Issue:



- Bearings have fine lumps that protrude from top surface
- Protrusions could add to T13 wear metal oil analysis

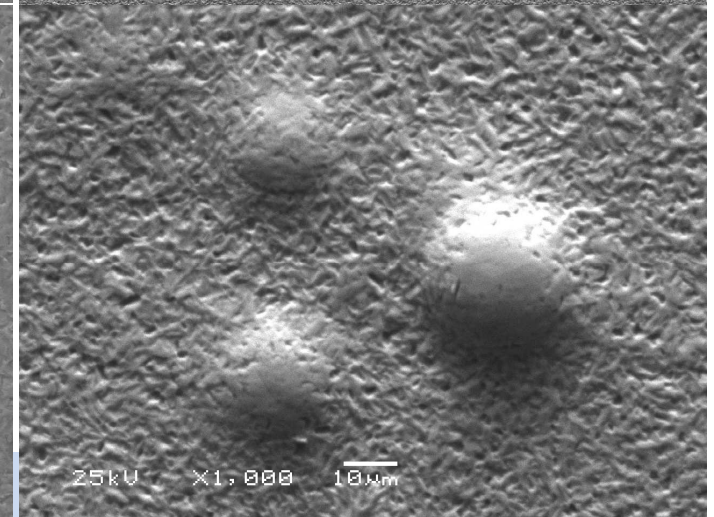
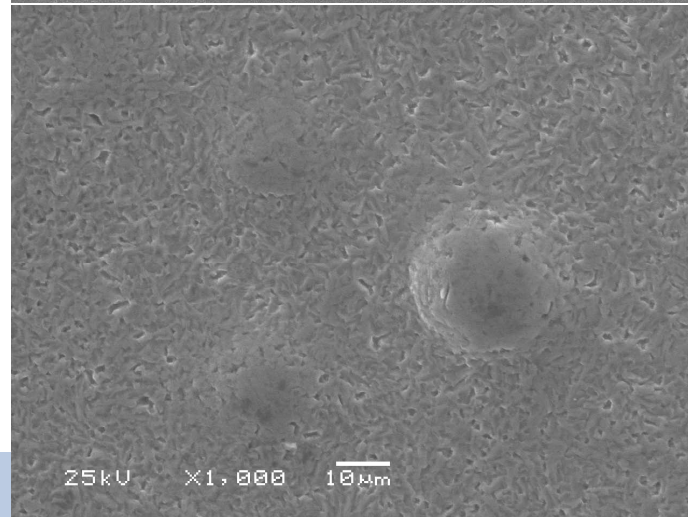
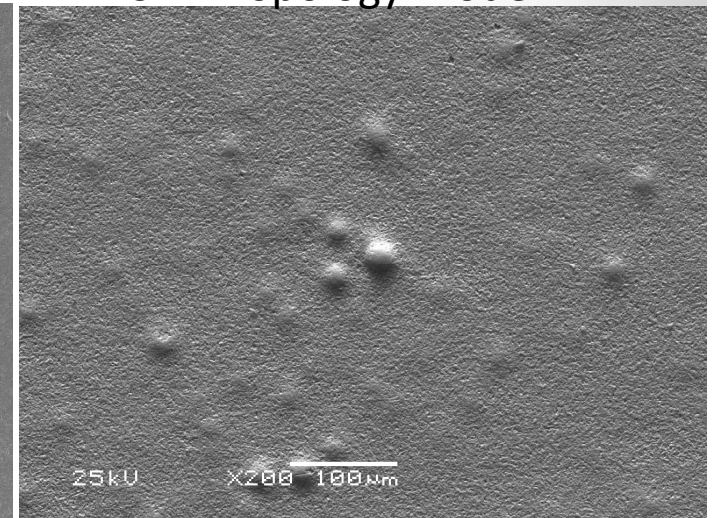
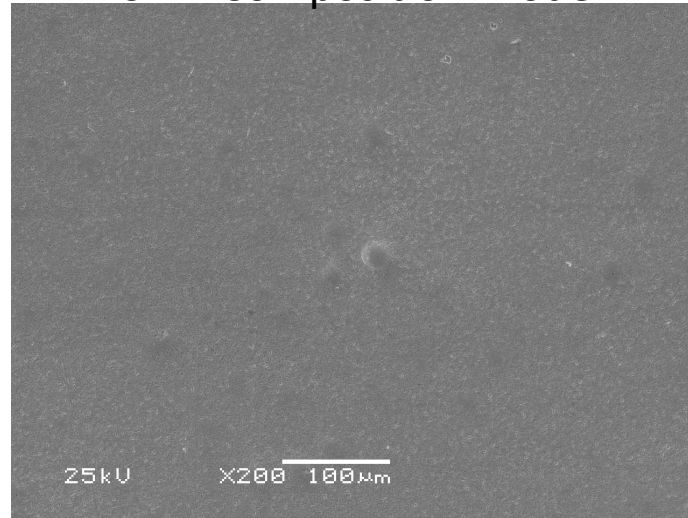
Bearings



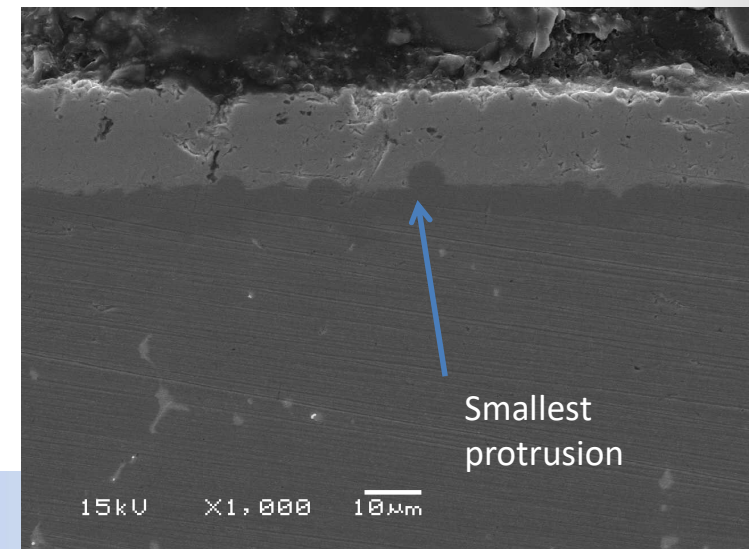
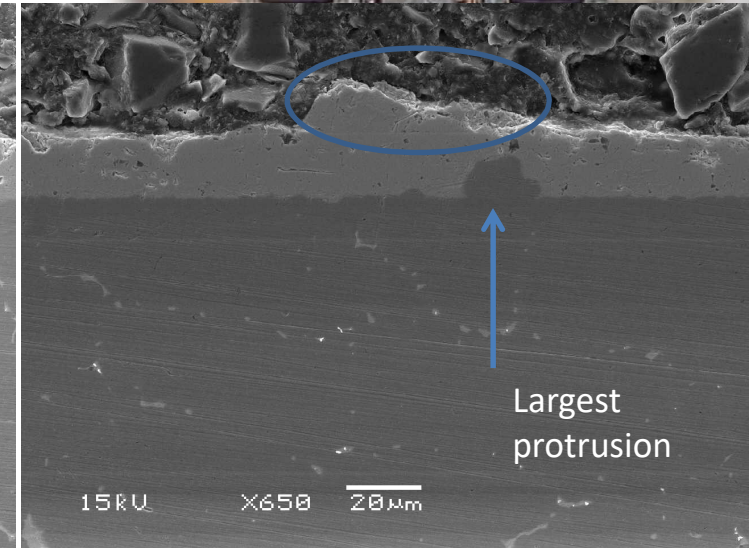
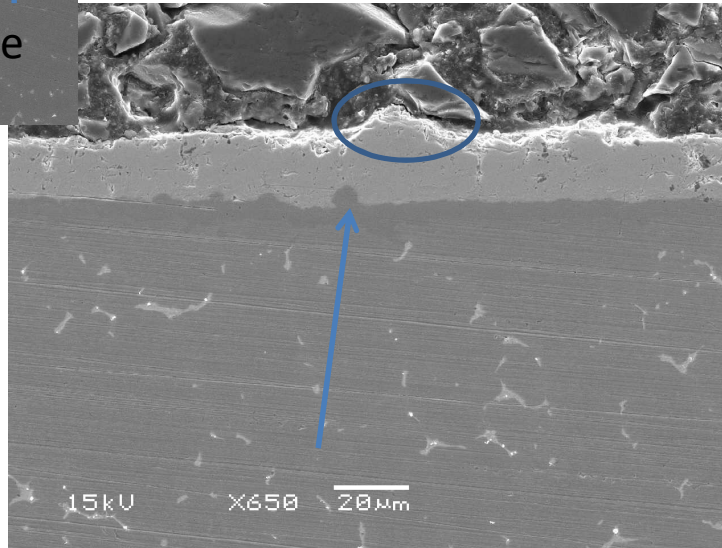
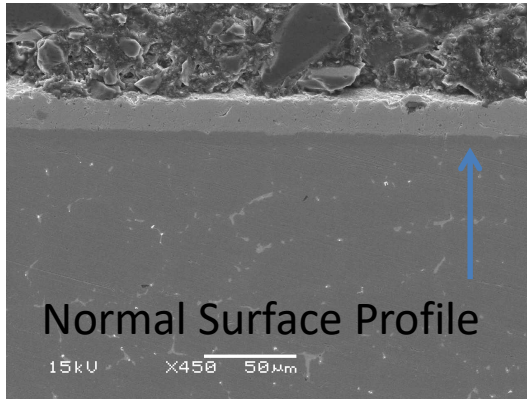
SEM Composition Mode

SEM Topology Mode

Top surface analysis shows that the lumps do stand proud to the surface, but the Sn overlay material is constant across the surface (suggests the source of the lumps are subsurface)

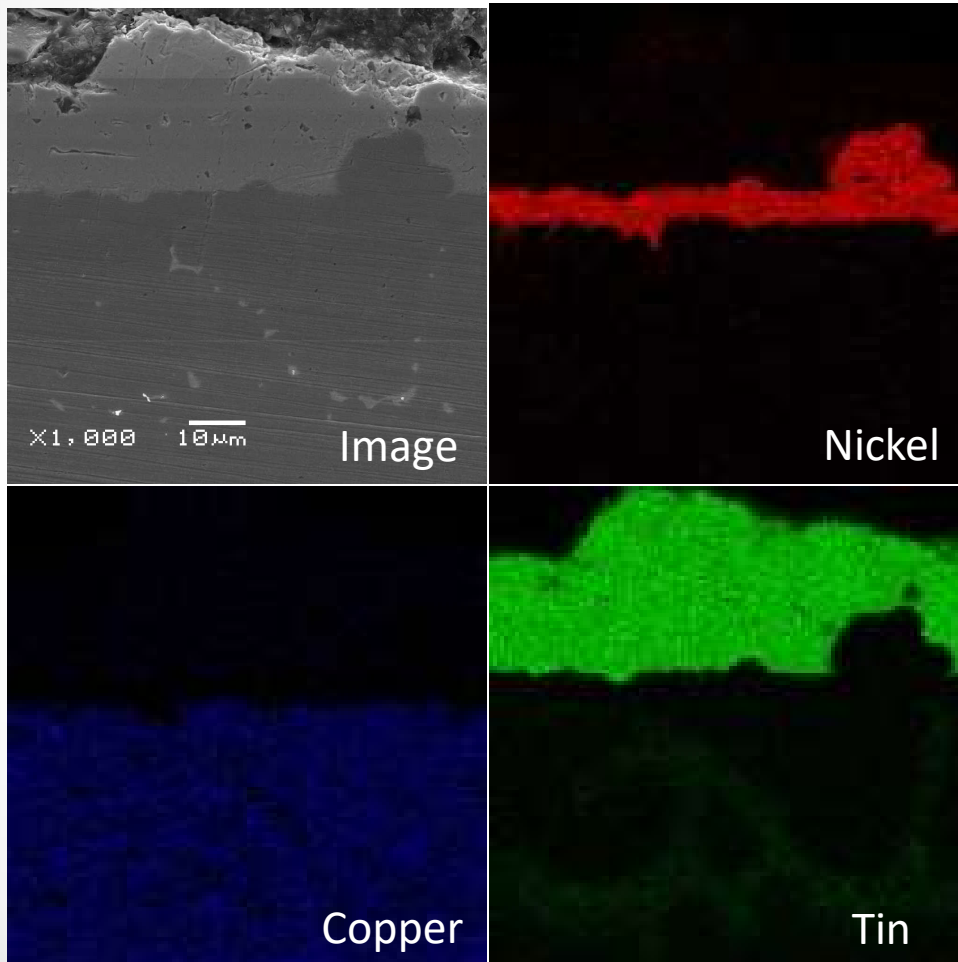


Cross Section



The Sn bumpy surface appears for the most part to be in the vicinity of subsurface protrusions (however there was 1 example of that not being the case. But this is just a planar cross section and the entire region in the vicinity of the subsurface protrusions aren't examined. The subsurface bump that didn't have a surface bump was also the smallest seen)

Cross Section Element Map



Surface protrusions appear to be the result of the nickel plating process that leaves asperities on the order of 20um tall