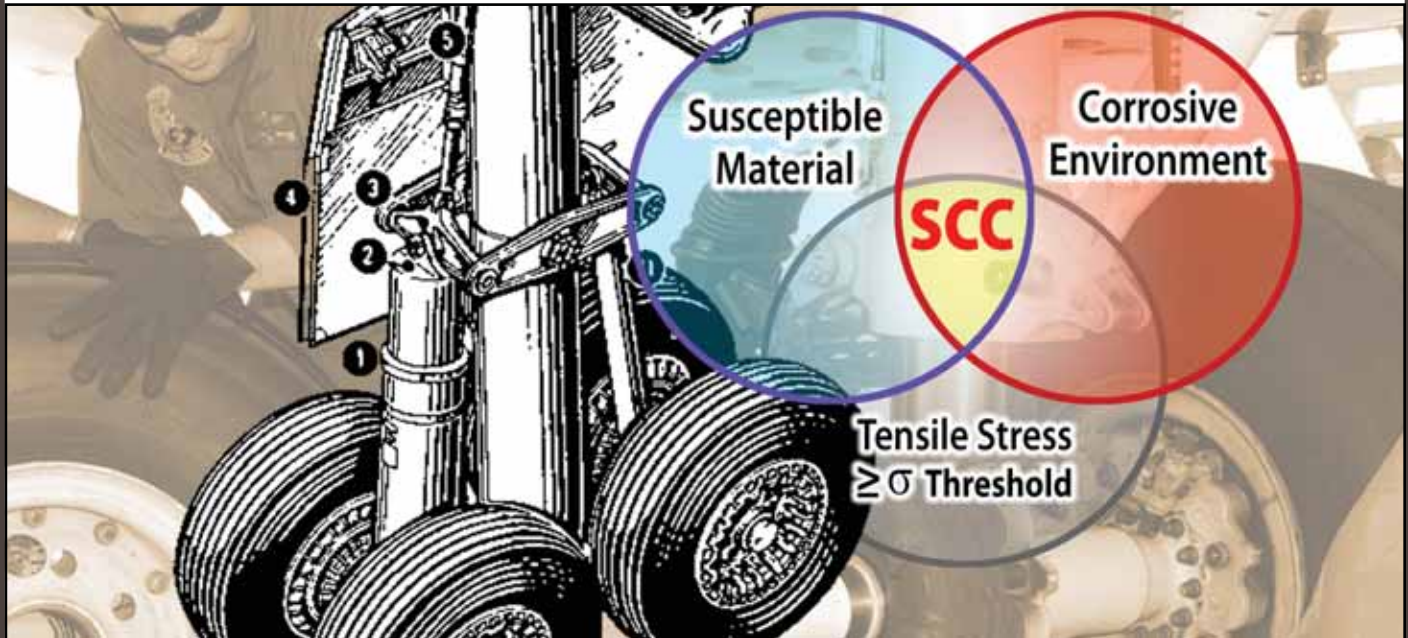


LANDING GEAR



MITIGATING SCC IN LANDING GEAR



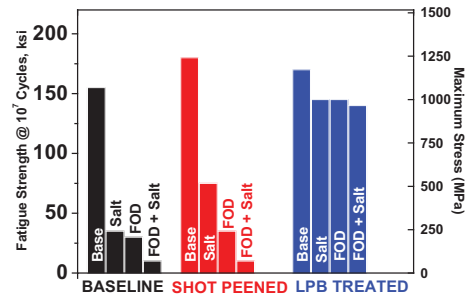
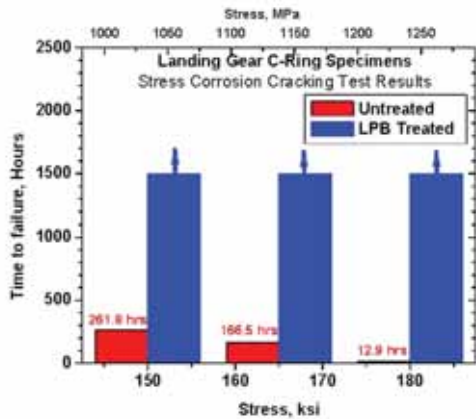
Low Plasticity Burnishing (LPB®) improves the damage tolerance of high-strength steel landing gear components through the development of an engineered residual stress distribution in the selected region to mitigate stress corrosion cracking (SCC) and fatigue failure.



- Reduces Inspection Times
- Increases Time in Service
- Decreases Maintenance and Replacement Costs
- Increases Safety for Passengers and Personnel

By keeping the damage-prone sections of the landing gear under high magnitude compression, LPB completely eliminates the risk of corrosion based pits cracking and propagating to failure. With LPB landing gear and other high-strength steel components can be made much more resistant to SCC.

High strength steel is used in landing gear because of its unique combination of ultra high strength with high fracture toughness. However, these steels are vulnerable to both corrosion fatigue and stress corrosion cracking (SCC) failures. The fatigue and corrosion fatigue performance of LPB processed 300M steel was compared with shot peened (SP) and baseline conditions. A 3.5% salt solution was used for corrosion testing.



LPB treatment dramatically improved both the HCF performance and corrosion fatigue strength, with and without simulated FOD. The corrosion fatigue strength of LSG and SP surfaces decreased dramatically, to only 20% and 50%, respectively, of the baseline strength, with no discernible endurance limit behavior under corrosion fatigue conditions. Even with damage, LPB restored parts to baseline strength or better.

Despite the existence of similar corrosion conditions, the deep compression from LPB treatment mitigated the effects of corrosion fatigue and FOD. The beneficial protective layer produced by LPB reduced the surface stress well below the SCC threshold for high strength steel, even under high tensile applied loads, effectively suppressing the failure mechanism.



To learn how LPB can increase the life of your landing gear please visit www.LambdaTechs.com or contact Kim Bellamy at (513) 561-0883.

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Accreditation:

- ISO/IEC 17025 Accredited Laboratory
- ISO 9001:2008 Certified
- FAA Accepted

For more information on Lambda, LPB[®] or to read complete papers, please visit www.LambdaTechs.com