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航空刹车副国产动盘回收复用研究

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摘 要: 为探讨航空刹车副国产动盘回收复用的可行性, 对已历经600多次起降使用后的某飞机国产刹车副动盘进行了外观检测、力学性能检验和金相组织观察, 并与新动盘进行对比. 通过检测动盘的外观、尺寸、质量、盘面硬度和微观组织发现, 国产动盘在经历第1个寿命周期后, 盘质量减少0.79~0.90 kg, 厚度减少0.86~1.23 mm, 洛氏硬度(HRC)平均下降1~2, 外观形状有一定程度的收缩变形, 但新旧动盘工作面的金相组织基本未变, 只是旧动盘中的气孔、缩孔和疏松等缺陷比新动盘的少. 这种旧国产动盘的关键参数仍在可用范围内, 只要经过少量的检测和适当的维修, 就可以再次装机使用.

关键字: 回收复用; 动盘; 飞机刹车副; 金相组织

Reuse of domestic worn aircraft brake rotors

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Abstract: In order to discuss the feasibility for the reuse of the domestic worn aircraft brake rotors, the appearance, mechanical properties and microstructures of a certain type of domestic brake rotors after taking off and landing for more than 600 times were studied and compared with new rotors. The changes of the outside shape, dimension, mass, hardness and microstructure were tested. The results show that, after a life-span period, their mass, thickness and hardness of the domestic rotors decrease by 0.79~0.90 kg, 0.86~1.23 mm and HRC 1-2, respectively, and the outside shape contracts and deforms to a slight extent, but the microstructure on the working surface of the worn rotors and the new rotors is almost the same, and the defects (such as gas pore, contracting pore and looseness) of the worn rotors are less than that of new rotors. According to the maintenance manual for the main wheel brake assembly of the airplane, the key parameters of these worn rotors are in the usable range, so they can be reused after proper testing and maintaining.

Key words: reuse; rotor; aircraft brake; microstructure

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