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歼击机主起落架充气嘴处的应力测定研究

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THE INVESTIGATION OF STRESS AT AN ENTER-GAS NOZZLE OF MAIN LANDING GEARS FOR FIGHTER AEROPLANES

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摘要

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摘要

歼击机在使用中发生主起落架外筒断裂事故,其中有的是在起落架外筒充气嘴的内螺纹处断裂。本文给出改进后起落架外筒充气嘴处的应力分布,提供起落架寿命估算和今后设计的依据,对改进后的起落架外筒进行了应力测定。

关键词: 主起落架 充气嘴 应力

Abstract:

In this paper, the distribution of axial stress at the cross-section of an enter-gas nozzle of main landing gears and the distribution of circumferential stress at a screwed hole of the enter-gas nozzle are investigated by using photoelasticity. The stress intensity factor  $K_I$  of an enter-gas nozzle containing semi-elliptic crack is also investigated by using both photoelastic and acoustic technique. The former experimental results are in agreement with analytical results. The difference between the latter experimental techniques is within 10 percent. This is satisfactory in engineering use. The values determined by the experiments are lower than the ultimate values  $\sigma_b$  and  $K_{Ic}$  of the material used in the design of the landing gear. Therefore, The landing gear redesigned is rational and safe.

Keywords: main landing gear enter-gas nozzle stress

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