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AD-200轻型飞机舱内噪声源传声途径识别

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CABIN NOISE SOURCE-PATH IDENTIFICATION FOR AD-200 ULTRALIGHT AIRCRAFT

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摘要

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摘要 为使建立在双传声器互谱声强基础上的识别方法在飞机上应用,进行了模拟测量。分别以带号筒的扬声器和激振器模拟空气传声和结构传声。模拟测量结果表明:空气传声和结构传声平均声强级识别值的误差分别为1.7 dB(A)和0.4 dB(A),满足工程应用要求。在此基础上,对AD-200轻型飞机在发动机工作下进行了地面测量。结果表明机舱内噪声主要来自座舱后隔板的空气传声。

关键词: 声传输 声学测量 轻型飞机

Abstract: new diagnostic method based on the two microphone cross spectral acoustic intensity technique was applied to identify the cabin noise source paths The simulating test using a loud-speaker and an electro-mechanical shaker to simulate the airborne and structureborne noise sources was conducted to prove the confidence of the proposed method The results show that the discrepancies between measured and separated values of total average acoustic intensity level are respectively 1.7dB(A) and 0.4dB(A)for structureborne and airborne components,which is acceptable for engineering application. The static test with engine in operation shows that the airborne noise through the rear board of cabin is the dominant contributor to cabin noise.This is a reasonable result,which gives a guide to cabin noise control treatment.

Keywords: sound transmission acoustic measurement light aircraft

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