Research on Fatigue Analysis Method of Commercial Vehicle Body Welding Joint Based on Road Load Spectrum㊀

Cui Yaoyu, Yan Xin, Li Shenshen, Gu Weimin, Cheng Yuting,
Sun Jiamei, Zhai Yunlong, Pei Yonghong
FAW Jiefang Commercial Vehicle Development Institute

Abstract: The fatigue life of body welds plays a very important role in durability. In this paper, the body-in-white of a domestic commercial vehicle is used as the research object and the actual road test results are used as the benchmark to calculate the road test damage threshold. The fatigue analysis method based on force and stress was used respectively, and the parameters of the stress-based fatigue method of body weld joint were obtained by comparing the field test threshold. It is found that when the number of finite element nodes around the welding core is not less than 16, and the welding wire distance of 0.3mm is used, the simulation results are closer to the real road test results. At the same time, it was found that the wire bond distance had little effect on the damage results.

Key words: body-in-white, welding joints, load spectrum, fatigue life analysis, inertial release

㊀ 本书仅收录摘要，全文刊载在《2023 中国汽车工程学会年会论文集精选（*Proceedings of China SAE Congress 2023: Selected Papers*）》（电子出版物，由德国施普林格出版社出版）。