航空学报
ACTA AERONAUTICA ET ASTRONAUTICA SINICA
ISSN 1000-6893
CN 11-1929/V

航空学报 » 1987, Vol. 8 » Issue (7) :417-422 DOI:

双泵并联供压液压系统频域仿真研究

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FREQUENCY DOMAIN SIMULATION OF A HYDRAULIC SYSTEM SUPPLIED BY PARALLEL DOUBLE PUMPS

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摘要 | 参考文献 | 相关文章

摘要 一、前言 在飞机和一般工业中,多泵并联供压液压系统是很常见的。研究动态仿真,对提高它们的动态品质是至关重要的。 泵源的脉动流量输入到液压系统中,在遇到负载阻抗后形成压力脉动。在泵源和负载的阻抗匹配后,可产生谐振现象,形成强烈的压力流量脉动,并引起液压系统的机械振动,严重者将造成元、部件的破坏。研究谐振问题的最方便的方法是频率法。

关键词：

Abstract： In this paper, frequency domain equivalent model of hydraulic positive displacement pump is presented.Its equivalent parameters（a source flowQs and a source impedance Zs）have been obtained by identification method. With these parameters, a mathematical model of a hydraulic system supplied by parallel double pumps is established. A pressure ripple equationis derived, and a computer program is designed. An aircraft hydraulicsystem is computed with this program. The computed result is in accord with the experimental result. This proves the usefulness of the theoretical equation and the computer program.

Keywords：