东方红1302R拖拉机液压机械差速转向机构的功率分析

Power analysis of hydro-mechanical differential turning mechanism of Dongfanghong1302R tractor

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作者	单位
曹付义	西安理工大学机械与精密仪器工程学院，西安 710048
王军	河南科技大学，洛阳 471003
周志立	河南科技大学，洛阳 471003
贾鸿社	一拖集团公司技术中心，洛阳 471003

中文摘要：

液压机械差速转向机构是利用液压机械无级传动原理，将液压传动与齿轮传动恰当组合的一种新型封闭双流传动机构。转向机构的方案设计、参数匹配、性能分析、强度和刚度计算一直是该领域的研究热点。该文通过建立液压机械差速转向机构传动比与液压功率分流比、液压系统排量比关系式，得出液压功率分流比的合理取值范围；采用功率流图给出不同工况下履带车辆液压机械差速转向机构内的功率流向，通过对不同工况下机构内两路功率传递的大小及方向比较，分析循环功率的存在条件及其对机构输出的影响。从而为该类机构设计、传动特性分析提供方法。

英文摘要：

The hydro-mechanical differential turning mechanism using hydro-mechanical infinite transmission theory is the new close double flow transmission mechanism being suitably made up of hydraulic transmission and gear transmission. The scheme design, parameter matching, performances analysis, calculation of rigidity and strength of this mechanism have been becoming the important project of this discipline. By establishing the relation formulas of transmission ratio of turning mechanism with hydraulic power distributing ratio and hydraulic system draining ratio, the reasonable numerical value range of hydraulic power distributing ratio was obtained. By adopting power flow charts, the power flow direction on turning mechanism of tracklayer was drawn under all running states. By comparing the numerical values and directions of two powers under all running states, the existing conditions of circulating power on mechanism and its influence on mechanism output were analyzed. The methods of design and transmission characteristic analysis of this kind of mechanism were provided.

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