

新型拖拉机电液控制系统

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摘要

对具有锥阀式结构的电液控制系统在操作平顺性、液压冲击、发热、卸荷压力、响应特性等方面进行了详细的研究, 提出利用动压反馈装置解决冲击问题。在本文所述条件下, 农具提升时所引起的拖拉机俯仰角速度由原来拖拉机液压系统的0.3 rad/s 降到0.08 rad/s, 压力冲击峰值由4.0 MPa降到2.8 MPa, 卸荷时控制阀块内部压力损失为0.12 MPa, 达到热平衡时的液压油温度为38 ℃, 该电液控制系统的开关频率为5.5 Hz。

关键词 [流体传动与控制](#) [电液悬挂](#) [泄漏](#) [平顺性](#) [动压反馈](#) [锥阀](#) [压力损失](#)

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New electro hydraulic control system for tractor

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Abstract The manipulation smoothness, the hydraulic pressure shock, the thermal loading, the unloading oil pressure, and the dynamic response of an electro hydraulic control system with the poppet valves for a tractor were studied in detail. The concept of the dynamic pressure feedback was proposed to solve the strong hydraulic pressure shock in the system and tractor pitch oscillation. The test of the new electro hydraulic control system led to following results: compared with the original control system, the tractor pitch speed caused by the lift of the farm implement reduced from 0.3 to 0.08 rad/s, the peak pressure shock in the hydraulic system decreased from 4.0 to 2.8 MPa, the unloading pressure loss in the integrated control valve block was 0.12 MPa, the hydraulic oil temperature at thermal balance was 38 ℃, the switching frequency of the control system was 5.5 Hz.

Key words [turn and control of fluid](#) [electro hydraulic hitch](#) [leakage](#) [manipulation smoothness](#) [dynamic pressure feedback](#) [poppet valve](#) [pressure loss](#)

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