

## 农业机械室内动态模拟试验装置研制

### A Transient Simulating Device for Farm Machinery in Laboratory

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中文摘要:

为研究地面不平度对土壤机器系统工作性能的影响,研制了一套属无静差随动系统动态模拟试验装置,它主要由信号处理,输入环节,脉宽调节电路,驱动电路,电流传感器,位移传感器反馈环节等组成。该装置用于试验研究田间作业机械低频( $\leq 10\text{Hz}$ )大振幅( $\leq 100\text{mm}$ )信号的动态响应特性,试验表明,模拟精度较高。

英文摘要:

A new developed transient simulating device is firstly used to measure the roughness in a typical field, and then using this roughness as input signal to study the relationship between the input and the output, the working performance of the machine on the simulating device in laboratory. The developed transient simulating device consists of a comparator, an amplifier, a director motor (speed adjustable) and a transmission device which converts the rotatory motion of the motor to up and down motion of a rod. The rod, simulates the roughness with up and down motion, pushes or pulls the wheels of the machine. Through measuring the vibration of the working unit of the machine, the relationship can be obtained. The results show that the field roughness, commonly, is a signal with low frequency ( $< 10\text{Hz}$ ) and large vibration amplitude ( $< 100\text{mm}$ ). The developed device has a high simulating precision.

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