



## METADATA

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### Abstract

The book is divided into eight chapters. In the first chapter there is a brief review of the process of integration of automation and mechatronic devices in agricultural machinery. In the second chapter, the electronic management systems of diesel engines are presented, as well as the emission control technologies. In the third chapter, semi-automatic and automatic power-shift transmission types with hydraulic actuators are presented in detail and the chapter concludes with the presentation of continuously variable ratio transmissions. The fourth chapter presents the electronically controlled hydraulic system. In the fifth chapter, different systems are presented that aim to improve the control of the agricultural tractor and offer comfort conditions to its operator. Among these systems are the permanent four-wheel drive system with automatic differential locking, the electronically controlled safety cab,

front axle suspension system and the panoramic system for monitoring the working process carried out at the rear of the tractor. The sixth chapter presents the ISO 11783 and SAE J1939 communication protocols developed exclusively for agricultural and forestry machinery, in order to cover all aspects of networking their electronic systems at the physical level, the standardization of the interface between the agricultural tractor and machinery, the interaction between operator and remote information management system. The seventh chapter presents the technological developments in the navigation and automatic guidance systems of agricultural vehicles. This book concludes with the eighth chapter, in which emphasis is placed on the application of advanced methods of forecasting and fault diagnosis so as to achieve smooth operation and prolong the life of machines and avoid sudden catastrophic failures.

