ERGONOMICS AND PRODUCTIVITY IMPROVEMENTS THROUGH MACHINE AUTOMATION

FORMEC 2015 – Forest engineering: Making a positive contribution
October 4 – 8, Linz, Austria

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Rotating and Leveling Operator Station

Available in John Deere Harvesters and Forwarders since 2008

Mechanically separated boom and cabin rotation

Different cabin turning modes

Display and controls are always at the same optimal position for the operator

Leveling system is based on state of the art control system

- Deere made Hw & Sw

| Lateral leveling angle is ±17 deg in Harvesters ±10 deg in Forwarders |
| Longitudinal leveling angle is ±10 deg in Harvesters ±7 deg in Forwarders |
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- Lateral leveling angle is ±17 deg in Harvesters ±10 deg in Forwarders

- Longitudinal leveling angle is ±10 deg in Harvesters ±6 deg in Forwarders
Rotating and Leveling Operator Station

Main components

A. Leveling Cylinder
B. Rotation Motor
C. Leveling and rotation valves
D. Accumulators (in Harvester)
E. Brake

Video: RL Cabin.mp4
IBC - Intelligent Boom Control
Conventional Boom Control

- Operator controls lift, jib and extension cylinders in order to achieve desired boom tip speed and position

IBC - Intelligent Boom Control

- Operator controls boom tip directly instead of controlling individual cylinders
  - Joystick 1: Boom tip forwards and backwards
  - Joystick 2: Boom tip up and down
- Includes cylinder end dampings
IBC - Technical Implementation

- Advanced control algorithms and optimized software implementation
- Cost-efficient and robust hardware solution
  - Employed using standard boom valve and embedded electronics
  - Protected sensors and electric cable routing
IBC - Customer Value

- Boom is easy and very intuitive to operate
  - Shortened learning curve
  - Faster cycle times and thus improved fuel economy [L/m^3]

- Reduced operator fatigue and improved ergonomics
  - Operator can maintain high productivity over the long work shift
  - Operator can concentrate on work planning instead of controlling the boom

- Smooth boom motions and cylinder end dampings reduce mechanical stress of the boom and thus improve durability of boom structure and cylinders

- Simple boom tuning due to reduced number of setting parameters
**IBC - Customer Desired Feature**

- **Elmia 2013 Press:** “A Revolutionary and much longed-for innovation”
- **Metko 2014 Test user feedback:**
  
  ”This will save the boom (structures)”
  
  ”Easy to pick up trees from near without fear to hit the machine”
  
  ”Really precise”  
  “This is perfect”  
  “You have indeed succeeded to create good design and control” (Competitor Instructor)
  
  ”This is really good. I wish my boss would buy this”
  
  “Would not like to go back to my own machine”
  
  ”Easy” …  
  ”Logical. Goes like a thought”
Harvester PPC – Processing Power Control

Available in all John Deere EIT4 Harvesters onwards

Optimizes performance and fuel economy

Three power levels: controls engine and tree processing hydraulics

Software based solution
PPC – Processing Power Control

Control principles:
Develop or Die – the Work Continues

The logging world is not ready yet