

Winning the Construction Challenge

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Construction Equipment Product Development

Worldwide Engineering Footprint: **Major Sites**



Fargo USA

- Wheel Loaders
- Consumer Products

San Mauro, Italy

- Crawler Excavator
- Wheeled Excavator

Imola Italy

- Tractor Loader Backhoe
- Mini Excavator

Berlin Germany

- Wheeled Excavator
- Grader
- Compact Wheel Loader

Burlington USA

- Tractor Loader Backhoe
- Forklift

Wichita USA

- Skid Steer Loaders
- Compact Track Loaders

Calhoun USA

- Crawler Excavator
- Dozers

Belo Horizonte, Brazil

- Crawler Excavator
- Grader
- Wheel Loaders
- Dozers
- Tractor Loader Backhoes

Lecce Italy

- Telehandler
- Wheel Loaders
- Dozers

Construction Product Development

Case and New Holland Ranges vs. Competitors



	CASE	NH	CAT	KOM	HIT	VOL	DEE	IR	TER	JCB	LIE
Tractor Loader Backhoe	5	4	●	●		●	●	●	●	●	
Crawler Excavators	14	14	●	●	●	●	●		●	●	●
Wheel Loaders	5	5	●	●	●	●	●			●	●
Skid Steer Loaders	8	10	●	●		●	●	●		●	
Compact Track Loaders	4	3	●	●			●	●		●	
Crawler Dozers	7	7	●	●			●				●
Wheel Excavators	5	5	●	●	●	●			●	●	●
Mini Crawler Excavators	10	11	●	●	●	●	●	●	●	●	
Graders	3	5	●	●		●	●				
Telescopic Handlers	4	4	●	●		●	●	●	●	●	
Midi Crawler Excavators	2	2	●	●	●	●	●	●	●	●	
Midi Wheel Excavators	2	2		●		●			●		●
Compact Wheel Loaders	4	4	●	●		●					●
Articulated Dump Trucks	4		●	●		●	●		●	●	
Compactors	7		●					●	●	●	
Heavy Duty Forklifts	2						●	●		●	
Crawler Loaders			●				●				●
Total	86	80									

New Holland E215B



Engine power - 118 kW / 160 hp
Engine displacement - 6,7 liters, 6 cylinders
Main pumps maximum flow - 2 x 220 l/min
Bucket breakout force - 142 kN
Swing maximum speed - 12,5 rpm
Swing maximum torque - 65 kNm

Caterpillar 320D



Engine power - 103 kW / 140 hp
Engine displacement - 6,37 liters, 6 cylinders
Main pumps maximum flow - 2 x 205 l/min
Bucket breakout force - 131 kN
Swing maximum speed - 11,5 rpm
Swing maximum torque - 62 kNm

New Products



2006E	2007E	2008E+
<u>4 Product Extensions</u>	<u>17 Product Extensions</u>	<u>10 Product Extensions</u>
 335 - ARTICULATED DUMP TRACK	 TELEHANDLERS	 TELEHANDLERS
 CX700 - CRAWLER EXCAVATOR	 WHEEL EXCAVATORS	 WHEEL EXCAVATORS
 420-440CT – COMPACT TRACK LOADERS	 SKID STEER LOADERS & COMPACT TRACK LOADERS	
30 Upgrades 19 Repowering 8 Special Attachments	32 Upgrades 74 Repowering 24 Special Attachments	42 Upgrades 54 Repowering 12 Special Attachments

Key Technology Differences Drive Brand Differentiation



- Different technologies and derivations create differentiation in high volume, key products:
 - ▶ Crawler Excavators
 - ▶ Tractor Loader Backhoes
 - ▶ Skid Steer Loaders
 - ▶ Compact Track Loaders

- The product palette is substantially complete
- Main emphasis in development is product line extensions
- Limited major product overhauls during plan period
- Key strategic objectives in support of commercial activities are:
 - ▶ Enhanced product quality
 - ▶ On time product launches
 - ▶ Customer driven technology enhancements
 - ▶ Design cost and investment reductions

- **Goal: Best-in-Class initial quality and long term reliability**
- **Mean-Time-Between-Failure roadmaps developed and to be confirmed with Reliability Growth Testing**

Examples: Mean Time Between Failure Improvements

Wheel Loaders	+84%
Skid Steer Loaders	+61%

- **Added Six Sigma tools - DMAIC to shorten “time to fix” on existing issues and DFSS to prevent issues on new programs**

- **Strengthened project management disciplines**
- **Streamlined organization with clearer roles/responsibilities and accountability**
- **Upfront agreement with Brands on project charters before initiating development work**
- **Resources put in place consistent with workload requirements**
- **Agreed escalation process to obtain help when problems arise**

Customer Driven Technology Enhancements



- **Productivity – Increased horsepower and improved controllability. Stronger emphasis on new special attachments**
- **Operating cost – Improved Fuel Economy (FE) through powertrain actions and reduced parasitic loads, such as hydrostatic drives and variable volume hydraulics**

Examples:

15% FE Improvement on NH E215B Crawler Excavator (12/06)

10% FE Improvement on Case 580M Tractor Loader Backhoe (02/08)

- **Operator friendliness – Improved ergonomics and reduced noise, vibration, and harshness**
- **Environment friendliness – New emission standards and 20% biodiesel compatibility**

Design Cost and Investment Reductions



- **Aggressive Gap Closure targets in all areas based on McKinsey comparison to John Deere**
- **Extensive use of competitive product benchmarking**
- **Design to cost disciplines**
- **Use of Technical Expert Workshops**
- **Cross functional component strategy teams to drive lowest total cost, including warranty and future technology considerations**
- **Cooperative efforts with key suppliers**