

Underground Construction Technology Conference

Leverage Ease-of-Use Machine
Technology to Maximize
Underground Utility Construction

CI
CONSTRUCTION INDUSTRIES



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*Global Construction & Infrastructure (GCI)
Industry Solutions Team - Supporting the Heavy Construction Industry*

Prior experience:

- 25+ Years of Construction Experience
- Project Manager (PM) 16 years
 - Heavy, Highway, Civil, Residential and Commercial
- Bradley University, Peoria, IL, USA
 - Construction Management Degree
 - Business Administration Degree

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CONSTRUCTION INDUSTRIES

Building Construction Products | China Operations | Earthmoving | Excavation | **Global Construction & Infrastructure** | Global Rental & Used Equipment Services | SEM | Services | Strategic Procurement | Supply Management





UNDERGROUND CONSTRUCTION TECHNOLOGY

THE UNDERGROUND UTILITIES EVENT | JANUARY 25-27, 2022 | FORT WORTH, TEXAS

161



Global Dealers



2900

Dealer Facilities

Approximately

172k



**Cat[®] Dealer
Employees Globally**

~ 1M



Connected Assets

Nearly



300 Models

192



Countries Served



WORK SAFELY & CONFIDENTLY: Technology

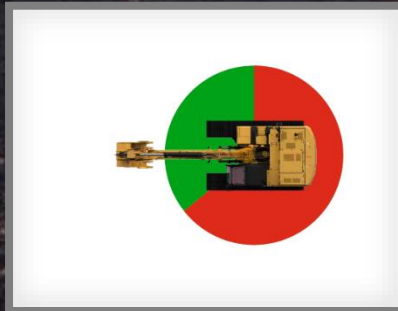
2D E-FENCE | Automatically constrains machine motion within boundaries by stopping the hydraulic system.



E-CEILING

Avoid:

- Power lines
- Bridges
- Overhead structures



E-SWING

Avoid

Swinging into:

- Live traffic
- Structures



E-FLOOR

Avoid:

- Underground utilities
- Layers



E-WALL

Avoid:

- Structures
- Buildings



E-CAB

Avoid:

- Machine cab structure

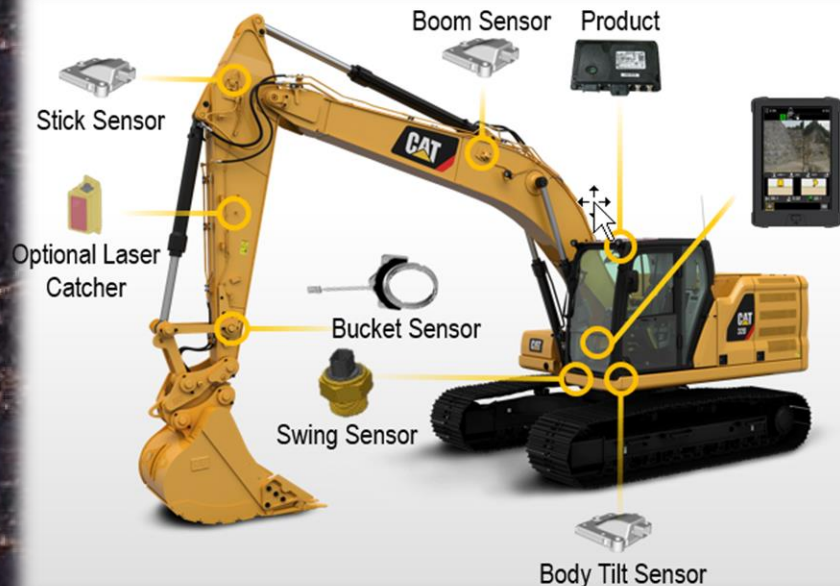


WORK SAFELY & CONFIDENTLY: Technology

CAT GRADE, ASSIST AND PAYLOAD



TECHNOLOGY



STANDARD FROM FACTORY



CAT GRADE WITH 2D

- Reach grade faster
- Cut and fill to exact specifications without overcutting
- Work safer - No grade checkers needed



CAT GRADE WITH ASSIST

- Get more accurate cuts with less effort with automated boom, stick and bucket movements deliver
- Set slope, activate single-lever digging



CAT PAYLOAD

- Achieve precise load targets with on-the-go weighing
- Prevent over / under-loading and maximize efficiency
- Manage production and lower cost with automated tracking





CAT PRODUCTION MEASUREMENT - PAYLOAD

INCREASE SAFETY

**INCREASE JOB SITE
EFFICIENCY &
PRODUCTIVITY**

**MONITOR IN
CAB**

**PAIR WITH LINK TECHNOLOGIES TO
TRACK MATERIAL
MOVEMENT**

Category	Feature	Benefit	Feature Summary	Application
Payload	Cat Production Measurement (CPM)	Increase loading efficiency.	CPM provides on-the-go load weighing to assist operators with hitting precise load targets every time.	Truck Loading
	Static Weigh	Efficiently way an object.	Payload measured when machine is stationary.	Structure Weight/Safety
	Auto Calibration	Reduce set up time.	Integrated automatic calibration.	N/A

NO UNDERLOADING

No loss of productivity due to underloading.
Optimize truck fleet size when loading 100% every time.

NO OVERLOADING

No overloading fees.
Load is matched to design specifications.



CAT PRODUCTION MEASUREMENT – PAYLOAD VALUE

CAT
PRODUCTS
INDUSTRIES
SERVICES & SUPPORT

FIND DEALER

Language: Currency:

PAYLOAD

**PRODUCTIVITY PAYS OFF:
HOW MUCH CAN YOU SAVE WITH PAYLOAD TECHNOLOGY?**

PAYLOAD technologies provide on-the-go weighing to help operators hit exact targets, every time. That means you don't have to worry about overloading, underloading or misloading. All this accuracy makes for a more productive and efficient jobsite. Over time, that really helps your bottom line.

Use the worksheet below to plug in your data and estimate what your yearly savings could be, thanks to more precise payload measurements from Payload.

How many days per week are you operational?	How many weeks per year are you operational?	Days operational per year
<input type="text" value="5"/>	<input type="text" value="50"/>	250
<hr/>		
How many trucks do you load?	Average number of misloaded trucks per day?	Total number of misloaded trucks per year
<input type="text" value="100"/> per day 25000 per year	<input type="text" value="10"/>	2500
<hr/>		
Minutes lost to adjust 1 misloaded truck*	Per hour operational cost for equipment and labor	Per minute operational cost for equipment and labor (1/60)
<input type="text" value="15"/>	<input type="text" value="250"/>	4.17
<hr/>		

POTENTIAL YEARLY SAVINGS FOR YOUR OPERATION

\$156,250.00

TOTAL SAVINGS PER YEAR

* Based on estimated time to reload, tip-off, wait at scale house and reweigh as necessary

Project Values:

- 5 days per week
- 50 weeks per year
- 100 trucks per day
- 10 misloaded trucks per day
- 15 minutes lost to adjust 1 misloaded truck
- \$250 per hour cost for equipment and labor
 - \$100 Excavator
 - \$50 Operator
 - \$100 Truck with Driver

Payoff:

1. Safety
2. Reduced wear, fuel, trucks, cycles and cycle time
3. \$156,250.00

<https://cloud.em.cat.com/payload-calculator>



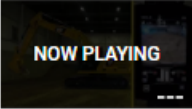
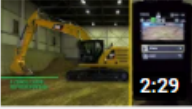
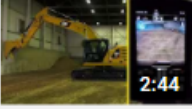
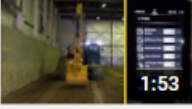
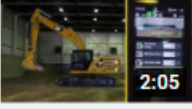
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RESOURCES >>>

Dealer Name



1		Next Generation Excavator Operator Training: E-fence Ceiling Cat® Products
2		Next Generation Excavator Operator Training: E-fence E-floor Cat® Products
3		Next Generation Excavator Operator Training: E-fence Wall Cat® Products
4		Next Generation Excavator Operator Training: E-fence Swing Cat® Products
5		Next Generation Excavator Operator Training: E-fence Cab Avoidance Cat® Products

<https://www.youtube.com/playlist?list=PLjMeT-rwp70h6w8G3zX1ovhUE2Yi-1mBy>

1		Next Generation Excavator Operator Training: Grade with 2D Cat® Products
2		Next Generation Excavator Operator Training: Grade with Advanced 2D Cat® Products
3		Cat® Next Generation Excavator Operator Training: Grade with 3D Cat® Products
4		Next Generation Excavator Operator Training: Payload Cat® Products

https://www.youtube.com/playlist?list=PLjMeT-rwp70jXNh4gTys1iEVyS_BmSGK6



Annual Product Updates (APUs)

- New features and product improvements to market quicker
- Greater frequency
- Software and/or hardware required
- Not available on all machines and all global regions
- Some changes are offered as kits and options

* Consult your Cat dealer for feature configuration

Cat Detect – People Detection

Models in scope: 313, 315, 320 and 323.

This feature detects both moving and stationary humans during traveling and swinging to increase both jobsite safety and operator comfort. It can detect multiple people simultaneously at a maximum distance of 9m. It will alert the operator with visual icons and sound alarm.

Auto Heavy Lift Lift Assist

Auto Heavy Lift

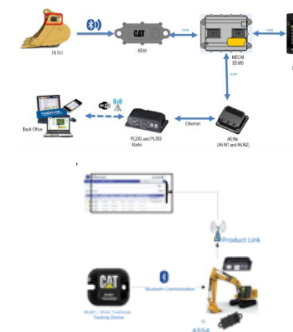
Models in scope: Track excavators' Performance models from 320 up to 374.

For field population, requires B6M5 ECM.

This feature helps increase the productivity by automatically activating the Heavy Lift function when the machine lifts an object.



Work Tool Locator Work Tool Recognition for Tool Control



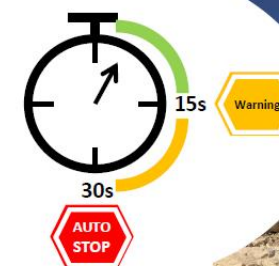
Work Tools Recognition for Tool Control

Models in scope: 320, 323, 326, 330, 336, 340, 349

PL161 is now included for all EXD work tools from 4Q 2019 (excluding in China and India for UD and GD buckets for B-linkage and smaller). If equipped with a bluetooth receiver, machine can receive the work tools ID and select appropriate work tool settings automatically from the work tool list (20 preloaded) by using information from PL161 via Bluetooth communication.

This new feature provides faster change of settings from one work tool to another and ensures settings for hydromechanical work tools are being changed while changing work tool.

Auto Hammer Stop





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