

# 72H

Pipelayer

PipeLine  
Machinery



## Engine

Engine Model	Cat® C9.3 ACERT™
Global Emissions	U.S. Tier 4 Interim/ EU Stage IIIB
Gross Power – SAE J1995	171 kW    229 hp

## Weight

Operating Weight	29 207 kg	64,390 lb
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## Lift Capacity

Lift Capacity at Tipping Point		
- ISO 8813	40 823 kg	90,000 lb

# Mid-Range Pipelayer Solution – 72H

## PipeLine Machinery International (PLM)

has developed a new pipelaying solution to enhance its pipelayer offerings.

With the support of Caterpillar and the engineering expertise of **Vanguard Equipment Inc.**, the challenge was met to create a mid-range pipelayer in the Tier 4 Interim/EU Stage IIIB class, designed for lifting 90,000 lbs. (40,823 kg) and engineered to meet the most exacting emissions requirements in the world.

The 72H combines the proven capabilities of the Caterpillar D6T base tractor with the Vanguard expertise in sideboom systems. Vanguard has many years' experience with pipelayer design (including the design of the Caterpillar 572R and 561M) and the manufacture of hydraulic pipelayer attachments and welding systems for Caterpillar and PLM.



## PLM presents the 72H - Caterpillar quality without compromise.

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# Pipelayer

*Integrated, robust components*



## Winches

Boom and hook draw works are driven by independent hydraulic winches. Oil-disc brakes provide smooth operation and positive retention of boom and hook positions. A modular design allows for fast replacement, easy field service and testing. Infinitely variable speed controls for boom and hook allow for precise operator control. Emergency 'quick drop' function on load line control allows the operator to drop the load quickly.



## Counterweight

Hydraulically extended counterweight provides smooth, controlled weight-balance adjustment. The compact design of the counterweight provides maximum lift capability and optimum weight distribution. Dual action hydraulic counterweight relief valves provide added protection for personnel during operations and servicing activities. A manual mechanical safety lock ensures secure lock-out for worry free servicing.



## Blocks & Hook

The heavy-lifting components include hook and boom blocks with sleeve bearings, a forged hook with latch and serviceable handle, and ductile iron sheaves. The high-performance cable enhances flexibility, strength and crush resistance.

## Drawbar

The robust drawbar is able to accommodate a wide range of attachments. The solid, frame-bolted design is secure for train attachment or anchor tractor use.

## Boom

The light weight, durable boom features high tensile strength steel construction for narrow structures and maximum visibility to the work area. Replaceable boom-mount bearings aid serviceability and long life. A 6.1 m (20 ft) boom is standard with large box section.



# Implement and Steering Controls

*Ergonomically Designed for Ease of Operation*



## Pipelayer Control

Dual control levers place all of the boom, hook and counterweight function control in one hand.

## Quick drop control

When activated, the quick drop control will allow the load on the hook to free fall to the ground. This control is only for use in emergency situations where the load must be released immediately.

## Throttle Rocker Switch

One touch of the throttle rocker switch allows the operator to increase/decrease engine speed to a set level with the touch of a button. A new feature allows the operator to press and hold until desired engine speed is attained, then release for the machine to maintain the new chosen speed.

## Steering and Transmission Control

The electro-hydraulic differential steering controls the direction and degree of turns, forward-reverse shifting, and gear selection in a single control handle, all enhancing operator comfort. The handle is ergonomically designed to reduce operator fatigue. The thumb roller on the steering control shifts the electronically controlled powershift transmission, while the FNR switch controls the machine travel direction. The tiller allows the operator to work precisely in close areas – around the ditch, ROW stakes and other machines.

## Instrument Panel and Cat Monitoring System

The 72H features a new in-dash display with new functionalities. The advanced monitoring system tracks the machine operating conditions in real time. The monitoring system display is illuminated for excellent visibility in low light and is glare resistant for easier view in bright light. It also includes controls for brightness and contrast.

## Optional Forced-Air Heater

An optional forced-air heater is available on open ROPS models for added operator comfort in colder weather.



# Engine and Power Train

## *Powerful Efficiency*



### **Engine**

The 72H Pipelayer features a Cat C9.3 ACERT™. The power shift transmission and differential steering work in tandem with the engine and a Cat Clean Emissions Module to deliver the performance and efficiency that customers demand, while meeting U.S. EPA Tier 4 Interim/EU Stage IIIB emission standards.

The six-cylinder electronic engine is turbocharged and aftercooled. The displacement produces better lugging capability, lower internal stresses and longer component life.

ACERT Technology is a combination of building blocks that includes electronics, fuel systems, air management systems and aftertreatment components.

### **Torque Divider**

A single-stage torque divider sends 70 percent of engine torque through a converter and 30 percent through a direct drive shaft for greater driveline efficiency and higher torque multiplication providing an optimum combination of operator efficiency and driveline reliability.

### **Differential Steering System**

Differential steering maintains full power to both tracks to provide superior controllability. When one track speeds up, the other slows down an equal amount. Maneuverability – especially with large hook loads – is improved. Greater load capacity, power and speed control are possible in soft underfoot conditions on steep slopes because both LGP tracks are powered during turns. Low effort tiller bar, touch shift control and steering modulation ensure ease of operation.

# Emissions Technology

*Reliable, integrated solutions*

## Cat NOx Reduction System

The Cat NOx Reduction System captures and cools a small quantity of exhaust gas, then routes it into the combustion chamber where it drives down combustion temperatures and reduces NOx emissions.



## Aftertreatment Technologies

To meet Tier 4 Interim/Stage IIIB emission standards and beyond, Cat aftertreatment components have been designed to match application needs. System components include a **Diesel Oxidation Catalyst (DOC)**, which uses a chemical process to convert regulated emissions in the exhaust system, and a **Diesel Particulate Filter (DPF)** that traps particulate matter that is carried into the exhaust stream.

The DOC, DPF and Cat Regeneration System are contained in a Caterpillar designed **Clean Emissions Module (CEM)** that protects the components, minimizes the aftertreatment footprint and simplifies maintenance.



## Cat Regeneration System

The Cat Regeneration System is designed to work transparently, without any interaction needed from the operator. Under most operating conditions, engine exhaust is hot enough to oxidize soot through passive regeneration. If supplemental regeneration is needed, the Cat Regeneration System elevates exhaust gas temperatures to burn off soot in the Diesel Particulate Filter (DPF). This is a process that happens automatically, but the operator can initiate the cycle when convenient or interrupt regeneration as needed. A soot level monitor and regeneration indicator lights are integrated into the 72H dash display.



**Key Off Regeneration** – Optional Key Off Regeneration allows the operator to initiate a regeneration cycle after the key has been turned off. If a cycle takes place, the engine will complete regeneration, followed by a cool down period prior to shutting down.

## Structure

### *Underlying Strength*



The 72H main frame is engineered to handle the unique demands of the pipelaying operation. The purpose-built steel side-skin plates reinforce the chassis, adding strength to the main case, center saddle and front cross member for outstanding durability.

The final drives are elevated well above the ground level work area to protect them from impact loads, abrasion and contaminants.

Caterpillar uses robotic welding techniques in the assembly of the case and frames. The deep penetration and consistency of robotic welding insures quality for long life and durability.

## Undercarriage

### Engineered for performance

- Elevated sprocket design isolates final drives, axles, and steering components from harsh impacts.
- Fixed track frames ensure rigid stability for lifting operations.
- 660.4 mm (26 in) single grouser shoe, LGP configuration.
- Hydraulic track-adjusters used to maintain correct track tension.
- Segmented sprocket sections for easy replacement and servicing.
- Modular design aids serviceability to help reduce maintenance costs.

### Heavy Duty Undercarriage

Heavy-duty sealed and lubricated track permanently coats the track pin with a sealed-in lubricant, minimizing metal-to-metal contact. Internal pin and bushing wear is virtually eliminated. Lubricant is held in a reservoir in the track pin.

In addition, the pipelayer lifting loads are anchored across the complete track frame cross-section, for superior strength distribution.



## Cooling System

*Durable and efficient*



The engine radiator, Air To Air After Cooler (ATAAC), and hydraulic oil cooler are packaged in a single plane. Aluminum bar plate construction provides durability and allows for higher heat transfer and superior corrosion resistance. The standard cores feature 6 fins per inch to allow debris to pass through and reduce plugging concerns.

In cooler conditions, a new hydraulically driven demand fan reduces speed to conserve power, save fuel, and decrease sound levels.

An optional reversing fan attachment changes the fan rotation while the machine is backing up or stationary. This attachment includes access slots in the side of the radiator guard for cleaning access.

## Sustainability

**Thinking generations ahead**

The 72H is designed to benefit your business and reduce emissions.

- Meets U.S. Tier 4 Interim/EU Stage IIIB emission standards
- Fuel efficient engine, and features like a hydraulic demand fan, help decrease overall fuel consumption.
- Technologies like Product Link help improve overall efficiency, saving fuel and fluids, as well as wear and tear on equipment.
- New grab handles, steps, lighting packages and a ground level service center help enhance job site safety.
- Major components are built to be rebuilt, eliminating waste and saving customers money by giving the machine and/or major components a second – and even third – life.



# Serviceability and Customer Support

*When uptime counts*



## Enclosures and Guarding

Several key engine enclosure panels are hinged or feature tool-less removal for easy access during inspection or service work. Larger side engine enclosures provide direct access to the back side of the cooling package for inspection and cleaning. Heavy duty radiator grill doors are now standard and maintain their robust bolt-on, hinged design for easy access to the fan and the front side of the cooling package.



## Ground Level Service Center

The new ground level service center is accessible on the left hand fender without setting foot on the machine, giving easy access to the battery disconnect and secondary engine shutdown switches. Coming standard on the 72H is an engine coolant heater, HD starter and ecology power train drains.



## Access/Egress

Ladders and steps are designed for pipelayer operations offering safe and easy access/egress for the operator and service personnel. An Operator Presence Detection system allows the machine to idle when an operator is not in the seat. The system locks out the powertrain so any unintentional movements during ingress or egress will not physically move the machine.

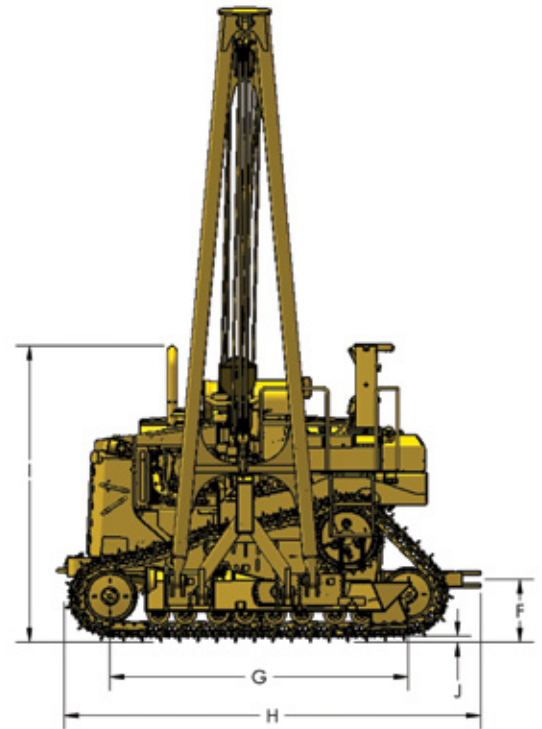
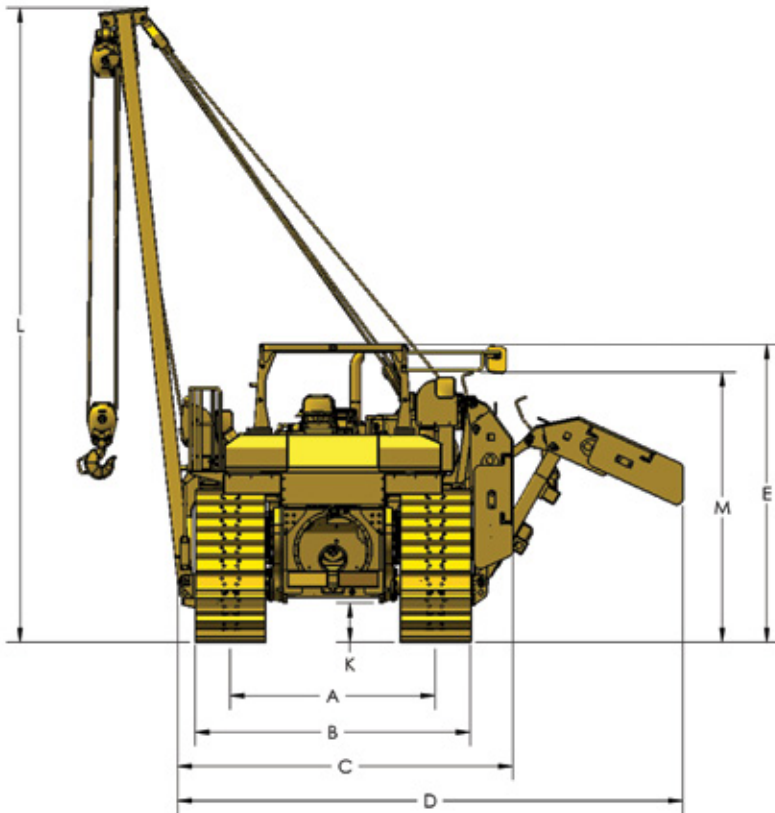


## Renowned Cat Dealer Support

From helping with your selection of the right machine to knowledgeable ongoing support, PLM and the rest of the Cat family of dealers provide the best in sales and service. With knowledgeable, pipeline industry experience, the PLM team are there - around the corner and around the world – helping the pipeline construction contractor with equipment advice, specialty parts supply and coordination of local service and parts support.

72H Pipelayer replacement parts are fully integrated into Caterpillar's worldwide parts network. Getting replacement parts anywhere in the world is as simple as contacting your local Caterpillar dealer.

# 72H Specifications



A	Track Gauge	2286 mm	90 in
B	Width of Tractor		
	26 in shoes	2946.4 mm	116 in
	30 in shoes	3048 mm	120 in
C	Width of Machine -		
	Boom Removed	3725 mm	146.7 in
D	Width of Machine -		
	Counterweight Extended	5542 mm	218.2 in
E	Machine Height - Tip of Grouser		
	Top of ROPS	3219 mm	127 in
F	Drawbar Height - to Center of Clevis		
	Tip of Grouser	626 mm	25 in
	from ground face of shoe	561 mm	22 in

G	Length of Track on Ground	3250 mm	128 in
H	Operating Length - With		
	Drawbar (VEI Estimate)	4498 mm	177 in
I	Height to Top of Stack	3176 mm	125 in
J	Grouser Height	65 mm	2.6 in
K	Ground Clearance (SAE J1234)	434 mm	17 in
L	Boom Height - Tip of Grouser		
	at SAE 4 ft (1.22 m) Overhang		
	20 ft boom	6884 mm	271 in
	24 ft boom	8107 mm	319.2 in
M	Height of CTWT Retracted (latch)	2921 mm	115 in

## Weights

Approximate <b>operating weight</b> of the standard machine, including boom and blocks <sup>1</sup>	29 207 kg (64,390 lb)
Approximate <b>shipping weight</b> of the standard machine, including boom and blocks <sup>2</sup>	28 780 kg (63,450 lb)
Weight of the 6.1 meter boom (20 ft)	1000 kg (2,205 lb)
Weight of blocks (Luff + Load + Hook + pins)	234 kg (515 lb)

<sup>1</sup> Operating Weight: Includes lubricants, coolant, 100% fuel, hydraulic controls and fluids, backup alarm, seat belt, 660 mm (26 in) single grouser shoes, drawbar, counterweight, boom and pulley blocks and cable, and operator.

<sup>2</sup> Shipping Weight: Includes lubricants, coolant, 10% fuel, hydraulic controls and fluids, backup alarm, seat belt, 660 mm (26 in) single grouser shoes, drawbar, counterweight, and pulley blocks and cable.





## Winch Dimensions

	Hook		Boom	
Drum diameter	10.0 in	254.0 mm	8.5 in	215.9 mm
Flange diameter	18.0 in	457.2 mm	16.0 in	406.4 mm
Drum length	11.0 in	279.4 mm	10.0 in	254.0 mm
Capacity - 3/4" (19.05mm) diameter	263.0 ft	80.2 m	170.0 ft	51.8 m

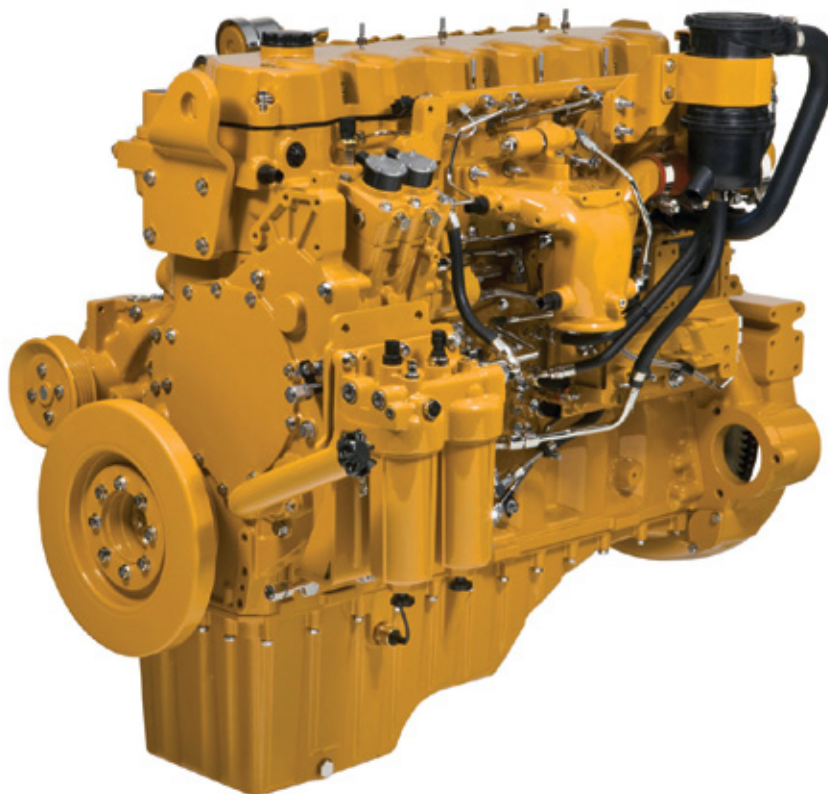
## Winch Speeds

(Nominal line speed, no load)	Hook speed		Boom line speed	
Bare drum 572	Hi 225 ft/min	68.6 m/min	183 ft/min	55.8 m/min
	Low 117 ft/min	35.7 m/min		

### Safety Features

- Boom and hook drawworks are driven by independent hydraulic winches
- Oil disc brakes provide smooth operation, positive retention of boom and hook positions
- Infinitely variable speed controls for both boom and hook allow precise control
- Quick Drop function on load line control allows the operator to drop the load quickly
- Hydraulic boom stop valve provides proven, reliable automatic safety stop function to prevent overloading of key machine components.

## Engine Specifications



### Engine

Engine Model	Cat® C9.3 ACERT™	
Global Emissions	U.S. Tier 4 Interim/ EU Stage IIIB	
Gross Power - SAE J1995	171 kW	229 hp
Engine Power - ISO 14396	169 kW	227 hp
Net Power - SAE J1349	153 kW	205 hp
Net Power - ISO 9249	153 kW	205 hp
Net Power - ISO 9249 (DIN)		208 hp
Net Power - 80/1269/EEC	153 kW	205 hp
Bore	115 mm	4.5 in
Stroke	149 mm	5.9 in
Displacement	9.3 L	567 in3

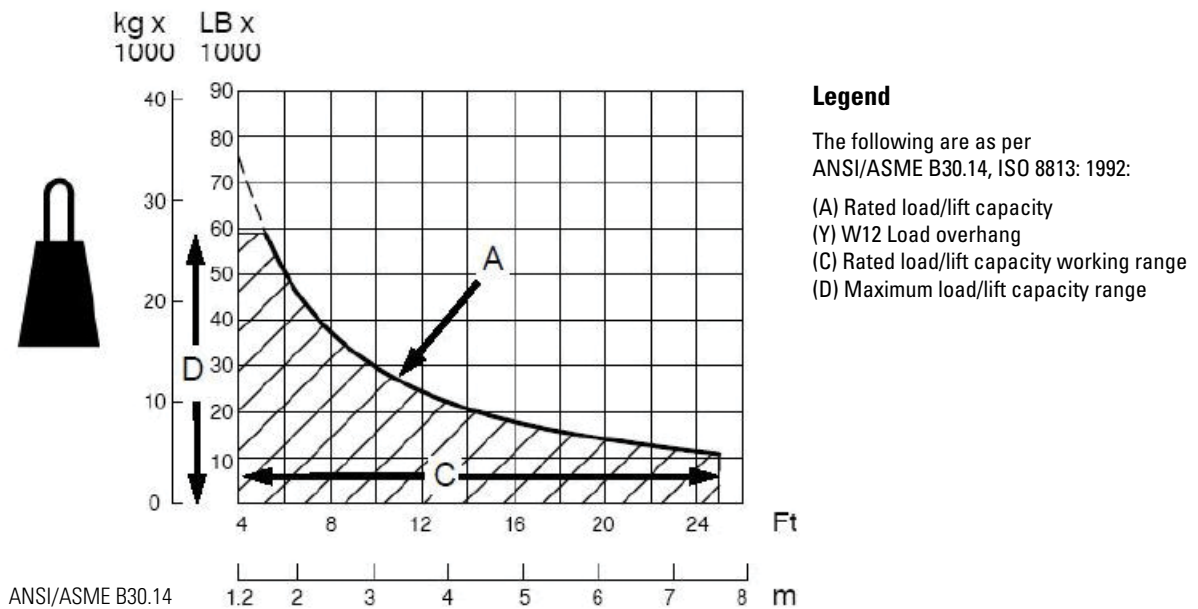
- Engine ratings apply at 1,850 rpm.
- Net power advertised is the power available at the engine flywheel when the engine is equipped with a fan at maximum speed, air cleaner, muffler and alternator.
- No deratings required up to 2286 m (7,500 ft) altitude, beyond 2286 m (7,500 ft) automatic derating occurs.



# Lifting Capacities

## 72H Pipelayer

Wire rope diameter	19.05 mm ( 0.75 inch)
Minimum breaking strength of the wire rope	261.56 kN (58,800 lb)
4 part load line	
4 part boom line	
Mass of the extended counterweight	5 822 kg ( 12,835 lb)
Standard boom length	6.1 m (20 ft)
Total operating weight of the machine	29 207 kg (64,000 lb)



### Intended Use

This machine is a Pipelayer that is described in ISO 6165:2001. The machine is intended to perform the following functions: lift, handle, and lay down pipe with a side mounted boom.

### Restrictions to Application and Configuration

The maximum lift capacity is 40 820 kg (90,000 lb).

The maximum fore and aft slope is 45 degrees or a 100 per cent grade for the proper lubrication of the pipelayer components.







# 72H Pipelayer



# Gear Up.

Exclusively through **PipeLine Machinery International (PLM)**, pipeline construction customers worldwide now have one stop access to purpose-built, 90,000 lb. lift pipelayers, Cranesmart Load Monitoring systems, DECKHAND® Pipe Handling systems, EK Pass custom training programs and Vanguard welding and hydraulic conversion packages and pipelayer attachments. With PLM's fleet of new and used Caterpillar pipelayers and traditional machines customized for pipeline operations, your pipeline solution is here. [www.plmcat.com](http://www.plmcat.com)

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