



# 589 Pipelayer

**CAT<sup>®</sup>**

---

**Cat<sup>®</sup> 3408 turbocharged diesel engine**

---

Gross power	333 kW	446 hp
Flywheel power	313 kW	420 hp
Operating weight	68 456 kg	150,945 lb
Lift capacity	104 330 kg	230,048 lb

## Winch and Boom

*Hydrostatic drawworks provide speed capability that exceeds conventional mechanical drawworks.*

**Two independent, hydraulically driven motors** power boom and hook drawworks.

**Speed ranges** matched to those of gear-driven drawworks for side-by-side operation.

**Oil-disc brakes** provide smooth operation – positively retain hook and boom positions.

**High parts commonality** between hook and boom winch assemblies.

**Modular design** for fast replacement, easy field service and pretesting before installation.

**Designed to function well in arctic environment.**



## Counterweight and Frame

*Excellent stability and load-carrying capacity necessary on the tough jobs.*

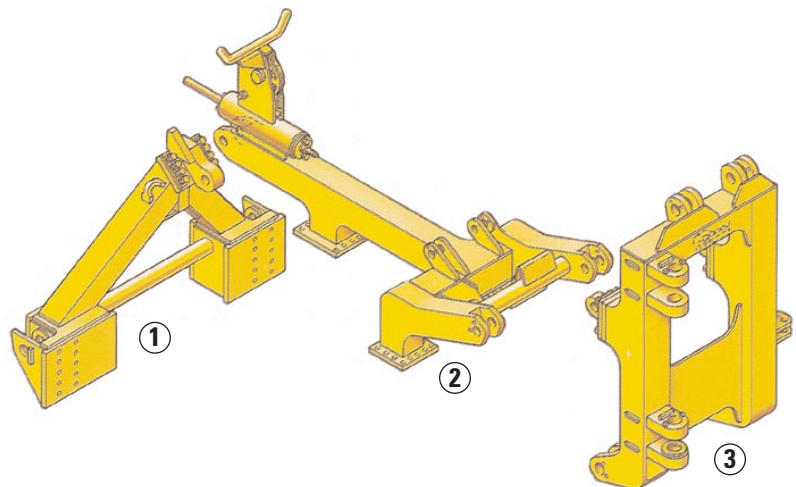
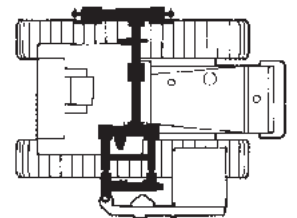
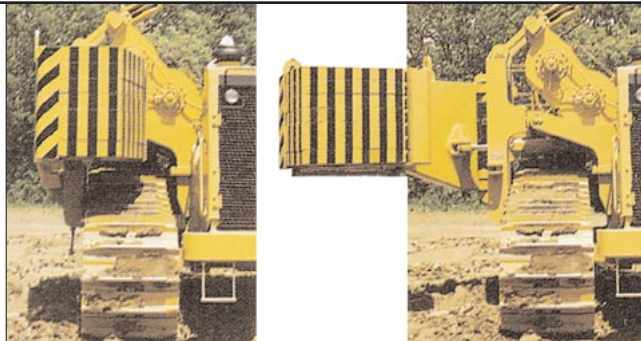
**Main frame consists of box-section frame** welded to cast bevel gear case... designed specifically to perform in pipelayer applications.

**Frame utilizes integral front bumper** with retrieval hitch and incorporates pipelayer frame mounts.

**Counterweight swings horizontally** for good machine balance.

**Counterweight has service strut** for mechanically locking in extended position; pin to lock in retracted position for shipping.

- 1 Left Frame
- 2 Center Section
- 3 Right Frame



## Operator's Station

*Comfort and convenience are designed into the control station for a fully productive operator.*

**Uncluttered compartment** provides easy access and excellent visibility to boom, winches and work area.

**Completely adjustable suspension seat** makes day-long operation comfortable.

**Self-centering type controls for drawworks** automatically return to "HOLD" (brake on position) whenever the controls are released.

**Separate hand steering levers and brake pedals** provide precise machine control.

**Single-lever transmission control and accelerator pedal** are designed for easy operation.



## Elevated Sprocket Undercarriage

*Caterpillar's elevated sprocket undercarriage with bogie system sets the standard in traction, durability and ride.*

**Bogie system undercarriage** envelops terrain irregularities for improved ride and traction.

**Long, wide track footprint** provides a large, very stable working base.

**Non-oscillating roller frame** rigidly tied to main frame for greater stability in pipelaying applications.

**Bogie cartridge pins and track** are sealed and lubricated, reducing maintenance time and wear, resulting in longer, less expensive operation.

**Final drives, steering clutches and brakes** relieved of all vertical ground contact shock loads, and roller frame alignment loads – extend power train component life.



## Caterpillar® Diesel Engine

*Proven Cat diesel power... an innovative, efficient cooling system... and unparalleled service ease.*

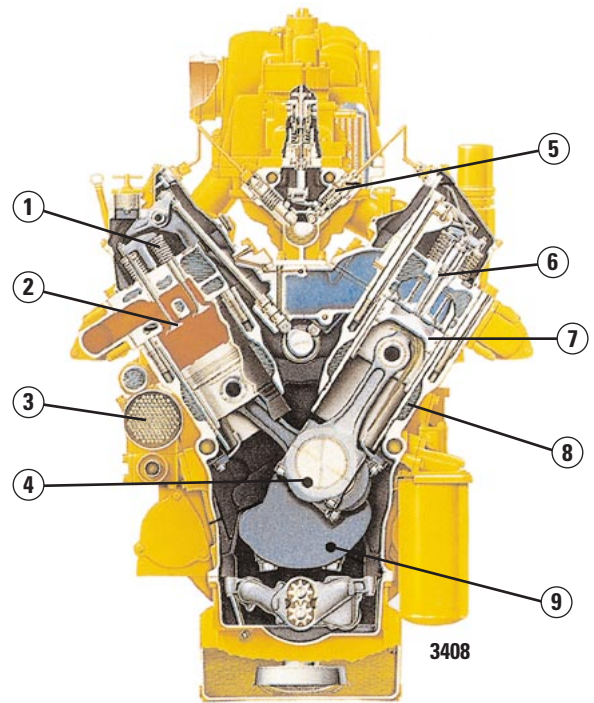
**Direct-injection 3408 diesel engine** is turbocharged and aftercooled to deliver plenty of power for quick response and handling big loads.

**Folded-core radiator** provides efficient cooling, reduced maintenance, quick module replacement.

**Engine and torque divider** form a module, isolation mounted to the main frame.

**Quick, easy service access** and inspection

- 1 Valve Rotators
- 2 Stellite-Faced Valves
- 3 Oil Cooler
- 4 Steel-Backed, Copper-Bonded Bearings
- 5 Adjustment-Free Fuel Injection Pumps
- 6 Injection Valves
- 7 Aluminum-Alloy Pistons
- 8 Full-Length, Water-Cooled Cylinder Liners
- 9 Forged Crankshaft



## Power Shift Transmission

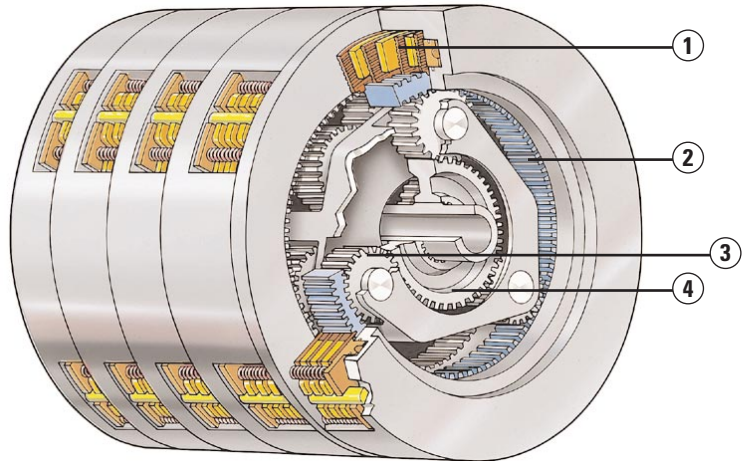
*Designed and built by Caterpillar.*

**Cat planetary, power shift transmission** permits speed and direction changes under full load, without the need to clutch, brake or decelerate.

**Planetary design** achieves high reduction in minimum space while spreading torque loads over multiple gears.

**Large-diameter clutch plates and gears** are continuously oil-cooled for long life.

- 1 Clutch Packs
- 2 Ring Gear
- 3 Planet Gears
- 4 Sun Gear



## Service

*Car's modular design concept moves the elevated sprocket pipelayers a generation ahead in simplified service and repair.*

**Major components** are easily accessible, removable as single units.

**Modular design** permits fast removal, installation.

**Pre-testing modular components** before installation or after repair assures quality.

**S•O•S Oil and Coolant Sampling valves,** provide a fast, convenient means of obtaining fluid samples and improve analysis reliability.

**Grouped service points,** easy access to service areas make routine checks fast, convenient.

**Diagnostic connector** enables fast troubleshooting of starting/charging problems.

**Electronic Monitoring System** – guards against costly failures when gauges aren't checked often enough.

**Folded-core radiator** provides efficient cooling, reduced maintenance, quick module replacement.



## Total Customer Support

*When you purchase a Cat 589, you know it comes with support that is unmatched in the industry!*

Your Cat dealer offers a wide range of services that can be set up under a Customer Support Agreement when you purchase your equipment. The dealer will help you choose a plan that can cover everything from machine and attachment selection to replacement, to help you get the best return on your investment.

**Selection.** Make detailed comparisons of the machines you are considering before you buy. How long do components last? What is the cost of preventative maintenance? What is the true cost of lost production? Your Cat dealer can give you precise answers to these questions.

**Purchase.** Look past initial price. Consider the financing options available as well as day-to-day operating costs. This is also the time to look at dealer services that can be included in the cost of the machine to yield lower equipment owning and operating costs over the long run.

**Operation.** Improving operating techniques can boost your profits. Your Cat dealer has training videotapes, literature and other ideas to help you increase productivity.

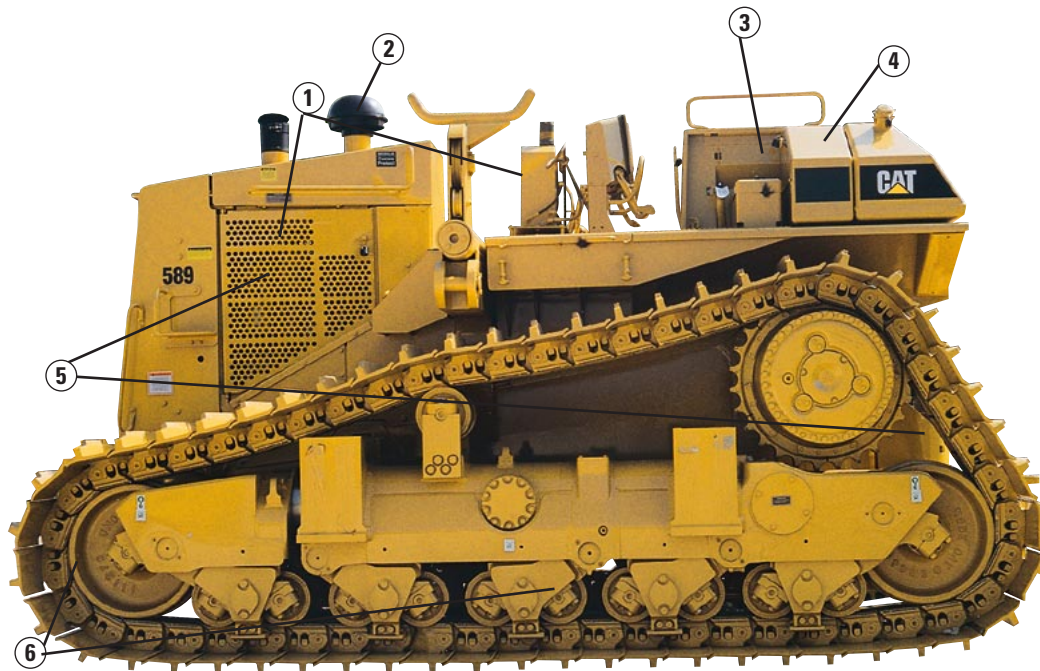
**Maintenance.** More and more equipment buyers are planning for effective maintenance before buying equipment. Choose from your dealer's wide range of maintenance services at the time you purchase your machine. Diagnostic programs such as S•O•S Fluids Analysis and Technical Analysis help you avoid unnecessary downtime and maintain the value of your machine.

**Replacement.** Repair, rebuild or replace? Your Cat dealer can help you evaluate the cost involved so you can make the right choice.

**Product support.** You will find nearly all parts at our dealer parts counter. Cat dealers utilize a world-wide computer network to find in-stock parts to minimize machine down time. Save money with remanufactured parts. You receive the same warranty and reliability as new products at cost savings of 40 to 70 percent.

## Cold Weather Package

Caterpillar offers an arctic package for cold weather operation for the 589 Pipelayer.



To provide peak performance and reliability in extreme cold weather, Caterpillar offers a cold weather package and options for their pipelayers

### Cold weather package includes:

- Reversible fan, manual
- Lubricants are synthetic for better performance
- Heater, fuel
- Batteries, two additional cold weather batteries
- Cold weather seals in the final drives, rollers, idlers and bogies
- Disconnect key for electrical systems is on a lanyard to prevent key loss
- Precleaner is placed under the hood to avoid snow particles.

### Options available for cold weather:

**Flexaire Fan System** replaces the reversible fan and adjusts pitch and air flow according to engine coolant temperature. In extremely cold weather, the fan will remain at zero pitch and act as a dam, providing a cost effective alternative to shutters. The operator can reverse the fan pitch and airflow at any time simply by pressing a button in the cab.

**Coolant heater, espar with separate fuel tank.** Diesel fuel-fired heater D24W, warms coolant for easier starts and helps maintain proper operation temperature in extremely cold climates.

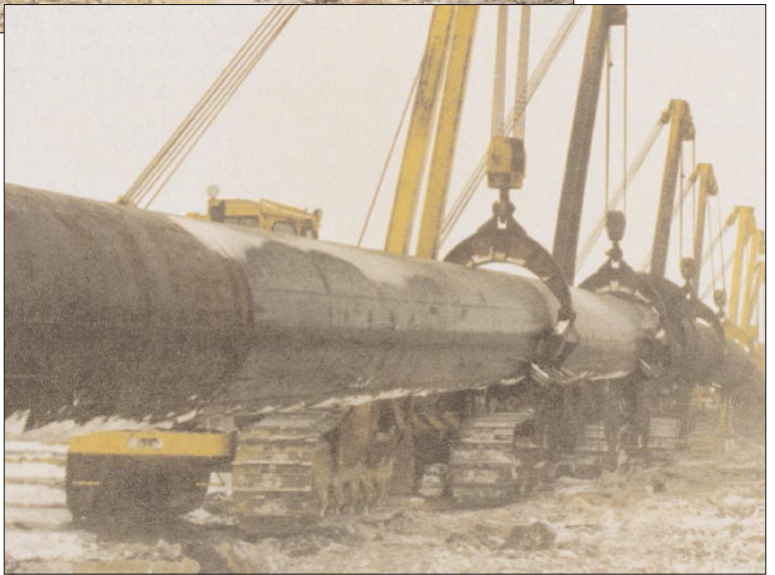
**Precleaner, Turbine.** Non-compression type preleaner ejects dirt and snow before it enters the engine or dust ejector on machines so equipped. This precleaner replaces the under-the-hood precleaner

**Enclosures, engine, perforated.**

**Track, 915 mm (36") 53 sec ES cold weather.** Provides 75 W synthetic oil in track joints.

- 1 Espar Engine Heater with Fuel Tank
- 2 Turbine precleaner
- 3 Batteries
- 4 Fuel Heater
- 5 Arctic Fluids Transmission and Engine
- 6 Arctic Seals and Oils
  - Final Drive
  - Idlers
  - Track Roller
  - Track

Note: Cold weather fan belts are standard. Cabs are available from AEM. Cold weather blankets are available.



## Engine

Four-stroke cycle, 3408 turbocharged and aftercooled diesel engine.

Ratings at 1900 rpm	kW	hp
Gross power	333	446
Flywheel power	313	420

(Kilowatts (kW) is the International System of Units equivalent of horsepower.)

The following ratings apply at 1900 RPM when tested under the specified standard conditions for the specified standard:

Net power	kW	HP	PS
Caterpillar	313	420	—
ISO 9249	313	420	—
SAE J1349	310	416	—
EU 80/1269	313	420	—
DIN 70020	—	—	435

## Dimensions

Bore	137 mm	5.4 in
Stroke	152 mm	6.0 in
Displacement	18 liters	1098 in <sup>3</sup>

## Weights

(approximate)

	kg	lbs
Chassis only	49 606	109,381
Pipelaying equipment with counterweights and RH/LH frames	18 244	40,228
Shipping	67 850	149,609

## Power rating conditions

- based on standard conditions of 25°C (77°F) and 99 kPa (29.32 in Hg) dry barometer
- used 35° API gravity fuel having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 30°C (86°F) [ref. a fuel density of 838.9 g/L (7.001 lb/U.S. gal)].
- net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator
- no derating required up to 1524 m (5000 ft) altitude

## Features

- direct-injection fuel system with individual, adjustment free injection pumps and valves
- cam-ground and tapered, aluminum-alloy pistons with three keystone-designed rings, each cooled by oil spray
- steel-backed, copper-bonded, aluminum bearings, through-hardened crankshaft journals
- parallel manifold porting with two intake and two exhaust valves per cylinder.
- two 12-volt, 172-amp-hour batteries. Optional arctic package available.

## Transmission

Planetary power shift with 432 mm (17 in) diameter, high-torque-capacity oil clutches.

## Speeds with power shift transmission (approximate)

Forward	km/h	mph
1	3.5	2.2
2	6.3	3.9
3	10.9	6.8
Reverse		
1	4.3	2.7
2	7.9	4.9
3	13.7	8.5

- Special modulation system permits smooth speed changes under load.
- Single-stage torque converter with output torque divider.
- Connected to transmission by double universal joint for unit construction to provide service ease.

## Counterweight

- Fully hydraulic, single-lever control.
- Swing-out design provides good ground clearance, optimum lift capacity.
- Retracts over tracks to provide good track pressure ratio and minimum overall width.



## Sealed and Lubricated Track

### Features

- Sealed and Lubricated Track surrounds the track pin with lubricant to virtually eliminate internal pin and bushing wear as a maintenance consideration.
- Positive pin retention locks the pin to the link to prevent “end play” or “pin walking.”
- Hydraulic track adjusters, track guiding guards and two-piece master link standard.
- Features large pins, bushings and bolts with positive pin retention which leads to long track seal life.

Numbers of shoes (each side)	53	
Shoe type	Extreme Service	
Pitch	229 mm	9"
Width of standard shoe	915 mm	36"
Length of track on ground	4286 mm	169"
Ground contact area with standard shoes	7.85 m <sup>2</sup>	12,168 in <sup>2</sup>
Grouser height (from ground face of shoe)	93 mm	3.7 in

## Controls

- Two levers control all functions including raise, lower, quick-drop and power down, high and low range and speed adjustments.
- Left hand lever controls hook, right hand lever controls the boom.
- Arm rests support arms for operator comfort.
- Hydraulically driven drawworks give infinite line speed control.

## Steering and Braking

- Spring-released, hydraulically-applied, multiple-disc clutches and spring-applied, hydraulically-released brakes are cooled by pressurized oil and require no adjustment.
- Each assembly serviceable as a unit.
- Separate hand-controlled steering clutches and pedal-controlled braking provide precise steering control.
- Meets ANSI/SAE J1026.

## Service Refill Capacities

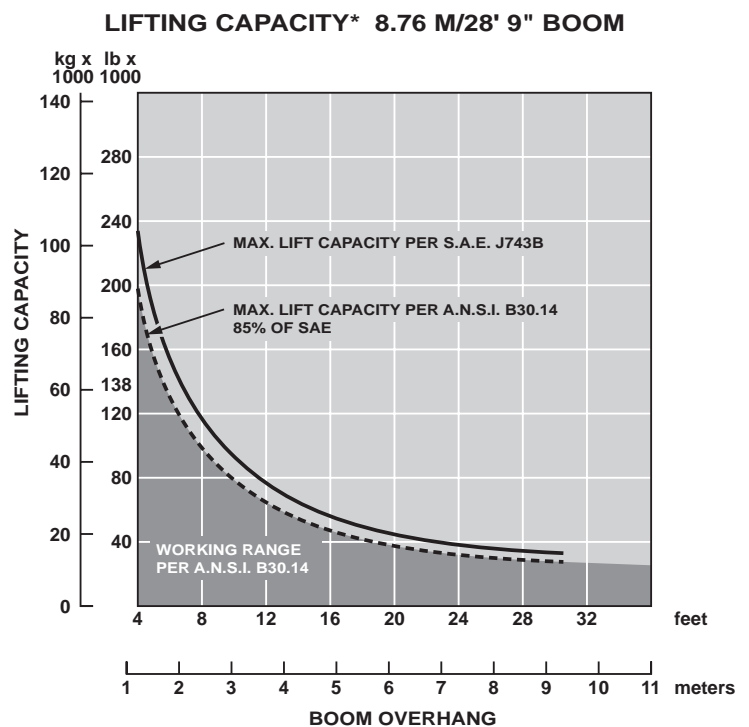
	Liters	Gallons
Fuel tank	777	205
Cooling system	100	26
Winch and counterweight hydraulic control	170	45
Lubricating system:		
Crankcase	46	12
Transmission, steering clutches and brakes	167	44
Final drives (each)	23	6

## Lifting Capacity

Lifting capacity 104 330 kg (230,000 lb) for precise control of up to 1.42 m (56") pipe.

### Specified Equipment

- Load: 22 mm (.88") diameter wire rope 31 389 kg (69,200 lb) minimum breaking strength
- Boom: 22 mm (.88") diameter wire rope 31 389 kg (69,200 lb) minimum breaking strength
- Eight-part load line
- Six-part boom line



# Pipelaying Equipment

**Live Power:** Continuous hydraulic power to pipelayer winches, independent of torque converter.

**Pipelayer drawworks** hydraulic motor drives through two speed planetary transmission. Brakes oil-cooled, multiple-disc, spring-applied, hydraulic released. Brakes engaged during lift operation through one way clutch in power train.

**Drums:** Operate independently or simultaneously.

**Brakes:** Multiple oil-disc, spring-applied, hydraulically released.

	Load	Boom
Brake diameter	345 mm/13.7"	345 mm/13.7"
Drum diameter	343 mm/13.5"	343 mm/13.5"
Length (inside flange)	318 mm/12.5"	310 mm/12.2"
Capacity	152 m/500'	93 m/305'
Cable size	22 mm/.88"	22 mm/.88"

Hook speed (bare drum)

Raise		
First	5.79 m/min	19.0 ft/min
Second	17.37 m/min	57.0 ft/min
Lower (powered)		
	23.47 m/min	77.0 ft/min

Six-part boom line, eight-part load line

**Boom – Square tube section**

Standard length	8800 mm	28'9"
-----------------	---------	-------

**Counterweight – Adjustable, hydraulically controlled**

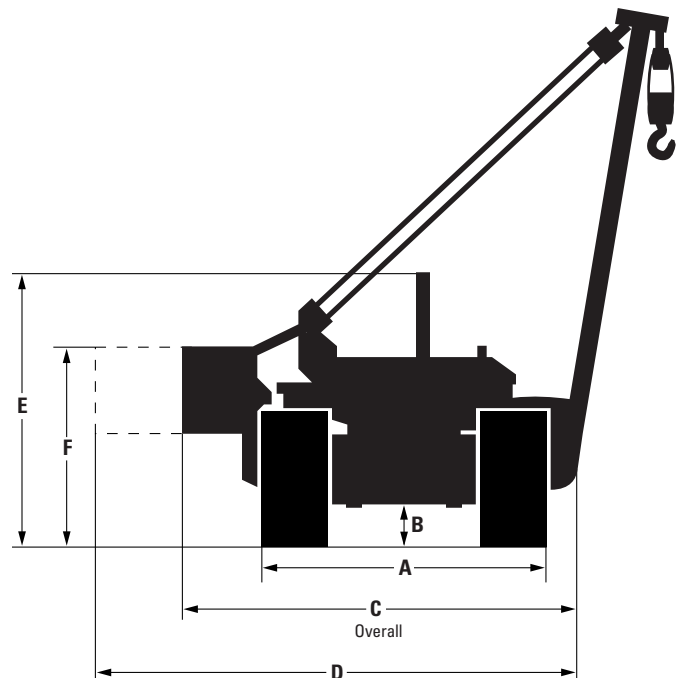
Counterweight frame	2644 kg	5830 lb
Seven segments at 1315 kg each	9208 kg	20,304 lb
Total weight extendible	11 852 kg	26,134 lb

## Dimensions

(approximate)

<b>A</b> Shipping width (both side frames removed)	3814 mm/12'6"
Minimum shipping width (both side frames removed)	
<b>B</b> Ground clearance (face of shoe)	589 mm/23"
<b>C</b> Width, weights retracted	4681 mm/15'4"
<b>D</b> Width, weights extended	6740 mm/22'
<b>E</b> Height, less boom	3919 mm/12'10"
<b>F</b> Height to top of counterweights	2915 mm/9'6"
Overall length	5921 mm/19'5"

Pipelayer frame breaks down to three pieces for transport. Counterweight carrier swings out for vertical removal of segments. Modular designed components aid partial disassembly for increased transportability and serviceability.



## Standard Equipment

Standard and optional equipment may vary. Consult your Caterpillar dealer for specifics.

Accelerator and hand throttle lever	Gauge package:	Rain cap
Air cleaner service indicator	Coolant temperature	Seat, suspension type
Alternator, 50-amp	Transmission/converter temperature	Seat belt
Back-up alarm	Drawworks oil temperature	Starting receptacle
Boom, 8.8 m	Guards:	Storage in operator's compartment (for personal items – lunch box, quart thermos, and heavy coat).
Cat 3408 diesel engine	Hinged crankcase and power train	Tool box
Counterweight (segmented)	Hinged radiator and blast deflector.	
Diagnostic adapter	Track guiding	
Drawbar, two position	Lighting system, two front, two rear (includes convenient connections for work lights)	
Ether starting aid	Muffler	
Fan, blower	Operator's panel includes: illumination lights, key start, direct electric, 24-volt system, electric hour meter, Electronic Monitoring System (EMS)	
Front bumper	Precleaner with dust ejector	
Front towing device		
Front warning horn		
Fuel priming pump		

## Optional Equipment

(with approximate changes in operating weights)

	kg	lb		kg	lb
Cold weather package	249	549	Hook with Latch	1	2
Coolant heater, espar and separate fuel tank	64	141	Low temperature starting (to -32° C/-26° F)	19	42
Cover Group-Seat	1		Precleaner, Turbine	-6	-13
Enclosures, engine, perforated	-61	-135	Radiator core protector	43	95
Emissions Compliant Engine	-	-	Tool kit	7	15
Fan, Flexxaire System	58	128	Vandalism protection:		
Fast service:			Instrument panel guard	5	11
Fuel	16	35	Cap locks for implement hydraulic tank filler, power train oil filler, engine oil filler, radiator filler, dip sticks for engine, and dip stick for power train	3	7
Engine oil	5	10			
Heater, engine block	4	8			

# 589 Pipelayer

AEHQ7068-02 (02-99)  
(Replaces AEHQ7068-01)

[www.CAT.com](http://www.CAT.com)  
© 1999 Caterpillar  
Printed in U.S.A.

Materials and specifications are subject to change without notice.  
Featured photos of machines may not always include standard equipment.  
See your Caterpillar Dealer for available options.

