



Cat[®] 938

SUGARCANE HANDLER

FEATURES:

CONFIGURED FOR SUCCESS

- Cat wheel loaders set the standard for productivity, fuel efficiency, operator comfort and low operating costs. The Cat 938 Small Wheel Loader features a high torque C7.1 engine that works in conjunction with an intelligent hydrostatic power train to deliver exceptional fuel efficiency. Meets Brazil MAR-1 emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.

ENJOY ALL DAY COMFORT

- Have a seat in the new Cat small wheel loader and enjoy automatic temperature control, class leading sound levels, enhanced all-around visibility and low-effort joystick controls that move with you on a fully adjustable seat suspension. A large spacious operator environment combined with Caterpillar hydraulic cylinder damping and smooth predictable controls make this the most comfortable seat on your jobsite.
- An upgrade to multi-view camera and rear object detection gives you an extra eye on the jobsite while the new optional force feedback joystick steering keeps you feeling confident on those long shifts. The operator not present function helps to isolate the machine if you leave the environment; while seat belt notifications give you a gentle reminder to buckle up.

EFFICIENTLY POWERFUL

- Experience the difference with an intelligent hydrostatic power train and industry leading fuel savings through a lower maximum engine speed working in combination with a new auto engine RPM mode. This provides efficiency as standard with a boost in power when you need it. Optimize traction and minimize wheel slip with a new Auto Wheel Torque and Auto Differential Lock system tuned to provide peak performance while maximizing tire life and keeping operating costs low. For tough and demanding sugarcane applications, the purpose built powertrain of the 938 Sugarcane Handler includes a high torque axle paired with high flotation agricultural tires for optimum performance.

WORK MADE EASY

- The 938 Sugarcane Handler is built to handle a high temperature and high debris environment, with a cyclonic prefilter and on-demand hydraulically driven reversing fan as standard.
- Move more with the Caterpillar ultra-capacity bagasse bucket, dedicated to stockpiling material at the mill or a patented quick loading performance series bucket for digging terraces in the field.

CUSTOMIZE YOUR EXPERIENCE

- Meet your application requirements and individual preferences with Caterpillar industry first Hystat[™] Operator Modes featuring four unique power train settings. Select classic torque converter for smooth rollout, conventional hystat for aggressive engine braking, and an all new single pedal mode for simplified use.
- Fine tune machine performance with adjustments at your fingertips through programmable joysticks, soft touch buttons, and a new jog dial that works in combination with a standard touch screen display.

UPGRADES AND SERVICES

- Enjoy a full range of upgrades and accessories to configure your small wheel loader for a broader range of applications.
- Utilize readily available services and maintenance parts, including a range of self-service options (SSO) and dealer installed kits.



938 Sugarcane Handler

Purpose Built

A complete range of optional equipment and work tool attachments gives you the versatility to configure a handler package to be successful in your business. Get with Caterpillar to configure yours.



- **Bagasse Bucket:** Designed to transport large quantities of bagasse. This bucket has curved sides for better retention and greater capacity with openings for better flow of material to make handling easier.
- **Quick Cylinder:** High speed tilting cylinder delivers quick hydraulic reaction times and is ideal for terracing.
- **High-flotation Tires:** Tires are engineered for superior flotation, better lateral stability, a smoother ride and improved traction and fuel savings.



- **Guard Your Investment:** Choose from a complete range of optional guarding to protect your machine from the harsh environment of sugarcane handling.
- **Maximize Tire Life:** Fine tune your wheel torque to match the underfoot conditions and maximize performance while extending tire life. Standard auto wheel torque and auto differential lock are ideal for sugarcane handling applications.

Specifications

Engine

Engine Model	Cat® C7.1*	
Performance Mode	Automatic	
Rated Gross Power		
Rated Engine Speed	1,800 rpm	
ISO 14396	140 kW	188 hp
ISO 14396 (DIN)	190 mhp (PS)	
Rated Net Power		
SAE J1349 at Minimum Fan Speed	136 kW	182 hp
ISO 9249 at Minimum Fan Speed	136 kW	182 hp
ISO 9249 (DIN) at Minimum Fan Speed	188 mhp (PS)	

*Meets Brazil MAR-1 emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.

• Advertised power is tested per the specified standard in effect at the time of manufacture.

Engine (continued)

Maximum Gross Torque		
Engine Speed	1,400 rpm	
ISO 14396	912 N-m	672 lbf-ft
Maximum Net Torque		
SAE J1349	876 N-m	646 lbf-ft
ISO 9249	886 N-m	653 lbf-ft
Displacement	427 in ³	7.01 L
Bore	4 in	105 mm
Stroke	5 in	135 mm

• Net power ratings are tested at the reference conditions for the specified standard and denote power available at the flywheel when engine is equipped with alternator, air cleaner, emission components and fan at specified speed.

Specifications (continued)

Buckets

Bucket Capacities	2.5-5.5 m ³	3.3-6.5 yd ³
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Steering

Steering Cylinder		
Bore Diameter	80 mm	3.1 in
Rod Diameter	50 mm	2.0 in
Stroke	399 mm	15.7 in
Maximum Flow – Steering Pump	130 L/min	34 gal/min
Maximum Working Pressure – Steering Pump	24 130 kPa	3,500 psi
Steering Cycle Times (Full Left to Full Right)		
Minimum RPM: Pump Flow Limited	3.1 seconds	
Maximum RPM: 90 rpm Steering Wheel Speed	2.3 seconds	

Loader Hydraulic System

Maximum Flow – Implement Pump	190 L/min	50 gal/min
3rd Function Maximum Flow*	190 L/min	50 gal/min
4th Function Maximum Flow*	160 L/min	42 gal/min
Maximum Working Pressure – Implement Pump	28 000 kPa	4,061 psi
Relief Pressure – Tilt Cylinder	30 000 kPa	4,351 psi
3rd and 4th Function Maximum Working Pressure	28 000 kPa	4,061 psi
3rd and 4th Function Relief Pressure	30 000 kPa	4,351 psi
Lift Cylinder – Standard Lift Linkage:		
Bore Diameter	120 mm	4.7 in
Rod Diameter	65 mm	2.6 in
Stroke	789 mm	31.1 in
Tilt Cylinder – Standard Lift Linkage:		
Bore Diameter	150 mm	5.9 in
Rod Diameter	90 mm	3.5 in
Stroke	555 mm	21.9 in

Hydraulic Cycle Times:

Power Mode at 1,800 rpm/Standard Mode at 1,600 rpm	
Raise (Ground Level to Maximum Lift)	5.5/6.2 seconds
Dump (at Maximum Lift Height)	1.5/1.7 seconds
Float Down (Maximum Lift to Ground Level)	2.7/2.7 seconds
Total Cycle Time	9.7/10.6 seconds

*3rd and 4th function flow is fully adjustable from 20% to 100% of maximum flow through the secondary display when equipped.

Service Refill Capacities

Fuel Tank	195 L	51.5 gal
Cooling System	32 L	8.5 gal
Engine Crankcase	19.5 L	5.2 gal
Transmission (gearbox)	11 L	2.9 gal
Axles:		
Front	35 L	9.2 gal
Rear	35 L	9.2 gal
Hydraulic System (including tank)	170 L	45 gal
Hydraulic Tank	90 L	23.8 gal

Transmission

Forward and Reverse		
Range 1*	1-13 km/h	0.6-8 mph
Range 2	13 km/h	8 mph
Range 3	27 km/h	17 mph
Range 4	40 km/h	25 mph

*Creeper control allows maximum speed range adjustability from 1 km/h (0.6 mph) to 13 km/h (8 mph) in Range 1 through the secondary display when equipped. Factory default is 7 km/h (4.4 mph).

Tires

Standard Size:

750/65R26, Radial, Agricultural

- Other tire choices are available. Contact your Cat dealer for details.
- In certain applications, the loader's productive capabilities may exceed the tire's tonnes-km/h (ton-mph) capabilities.
- Caterpillar recommends that you consult a tire supplier to evaluate all conditions before selecting a tire model.

Cab

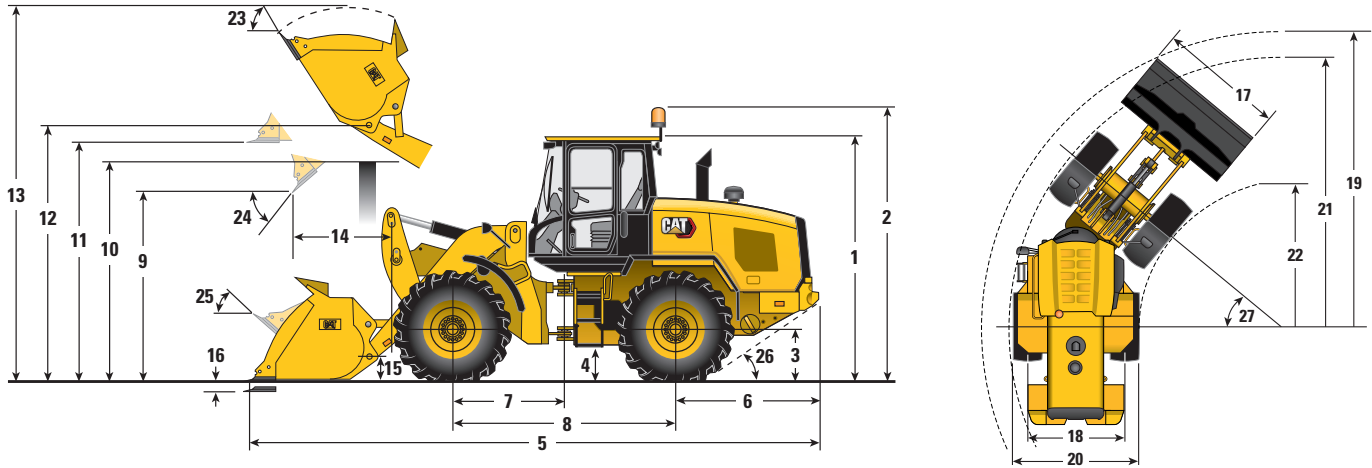
Rollover Protective Structure (ROPS):	ISO 3471:2008
Falling Object Protective Structure (FOPS):	ISO 3449:2005 LEVEL II

Axles

Front	Fixed Locking differential (standard)
Rear	Oscillating ±7 degrees Open differential (standard) Limited slip differential (optional)

938 Sugarcane Handler

Dimensions and Operating Specifications (All dimensions are approximate. Dimensions vary with bucket and tire choice.)



Bucket (Pin on)	6.0 m ³ (7.8 yd ³) Bagasse Bucket		2.7 m ³ (3.5 yd ³) General Purpose	
** 1 Height: Ground to Cab	3405 mm	11'2"	3405 mm	11'2"
** 2 Height: Ground to Beacon	3772 mm	12'5"	3772 mm	12'5"
** 3 Height: Ground to Axle Center	750 mm	2'6"	750 mm	2'6"
** 4 Height: Ground Clearance	451 mm	1'6"	451 mm	1'6"
* 5 Length: Overall	7393 mm	24'3"	7611 mm	25'0"
6 Length: Rear Axle to Bumper	1968 mm	6'5"	1968 mm	6'5"
7 Length: Hitch to Front Axle	1525 mm	5'0"	1525 mm	5'0"
8 Length: Wheelbase	3050 mm	10'0"	3050 mm	10'0"
* 9 Clearance: Bucket at 45°	2523 mm	8'3"	2887 mm	9'6"
** 10 Clearance: Load over Height	3419 mm	11'3"	3419 mm	11'3"
** 11 Clearance: Level Bucket	3707 mm	12'2"	3707 mm	12'2"
** 12 Height: Bucket Pin	4034 mm	13'3"	4034 mm	13'3"
** 13 Height: Overall	5730 mm	18'10"	5366 mm	17'7"
* 14 Reach: Bucket at 45°	862 mm	2'10"	1079 mm	3'6"
15 Carry Height: Bucket Pin	400 mm	1'4"	400 mm	1'4"
** 16 Dig Depth	35 mm	1.4"	35 mm	1.4"
17 Width: Bucket	3081 mm	10'1"	2750 mm	9'0"
18 Width: Tread Center	2013 mm	6'7"	2013 mm	6'7"
19 Turning Radius: Over Bucket	6199 mm	20'4"	6112 mm	20'1"
20 Width: Over Tires	2883 mm	9'6"	2883 mm	9'6"
21 Turning Radius: Outside of Tires	5621 mm	18'5"	5621 mm	18'5"
22 Turning Radius: Inside of Tires	2748 mm	9'0"	2748 mm	9'0"
23 Rack Angle at Full Lift	55°		54°	
24 Dump Angle at Full Lift	45°		49°	
25 Rack Angle at Carry	42°		42°	
26 Departure Angle	33°		33°	
27 Articulation Angle	40°		40°	
* Tipping Load – Straight (ISO 14397-1:2007)	10 517 kg	23,187 lb	11 300 kg	24,912 lb
* Tipping Load – Full Turn (ISO 14397-1:2007)	8967 kg	19,770 lb	9710 kg	21,406 lb
* Breakout	6699 kg	14,768 lb	9628 kg	21,226 lb
* Operating Weight	15 765 kg	34,757 lb	15 214 kg	33,542 lb

*Vary with bucket.

**Vary with tire.

Dimensions listed are for a standard lift machine configured with standard counterweight, powertrain guard, 80 kg (176 lb) operator, 750/65R26 agricultural tires and specified pin on bucket.

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit <https://www.caterpillar.com/en/company/sustainability>.

Engine

- The Cat® C7.1 engine meets Brazil MAR-1 emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.
- Cat engines are compatible with diesel fuel blended with the following lower-carbon intensity fuels** up to:
 - ✓ 100% biodiesel FAME (fatty acid methyl ester)*
 - ✓ 100% renewable diesel, HVO (hydrogenated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or “Caterpillar Machine Fluids Recommendations” (SEBU6250) for details.

*For use of blends higher than 20% biodiesel, consult your Cat dealer.

**Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.

Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.9 kg (4.2 lb) of refrigerant which has a CO₂ equivalent of 2.717 metric tonnes (2.99 tons).

Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
 - Barium < 0.01%
 - Cadmium < 0.01%
 - Chromium < 0.01%
 - Lead < 0.01%

Sound Performance

With cooling fan speed at 70% of maximum value:

Operator Sound Pressure Level (ISO 6396:2008) – 68 dB(A)*

Exterior Sound Power Level (ISO 6395:2008) – 101 dB(A)**

*Measurements were conducted with properly installed and maintained cab doors and windows closed.

Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO™ Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

Features and Technology

- The following features and technology may contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
 - Cat Production Measurement
 - Auto Wheel Torque Control
 - Auto Engine RPM
 - Intelligent Hystat Transmission
 - Performance Series Buckets
 - Engine Idle Shutdown
 - Variable Displacement Pumps

Recycling

- The materials included in machines are categorized as below with approximate weight percentage. Because of variations of product configurations, the following values in the table may vary.

Material Type	Weight Percentage
Steel	64.4%
Iron	15.1%
Rubber	7.3%
Nonferrous Metal	4.0%
Fluid	2.5%
Uncategorized	2.0%
Plastic	1.5%
Mixed Metal	1.0%
Mixed-Metal and Nonmetal	1.0%
Mixed Nonmetallic	0.8%
Other	0.5%
Total	100.00%

- A machine with higher recyclability rate will ensure more efficient usage of valuable natural resources and enhance End-of-Life value of the product. According to ISO 16714:2008 (Earthmoving machinery – Recyclability and recoverability – Terminology and calculation method), recyclability rate is defined as percentage by mass (mass fraction in percent) of the new machine potentially able to be recycled, reused or both.

All parts in the bill of material are first evaluated by component type based on a list of components defined by the ISO 16714:2008 and Japan CEMA (Construction Equipment Manufacturers Association) standards. Remaining parts are further evaluated for recyclability based on material type.

Because of variations of product configurations, the following value in the table may vary.

Recyclability – 94%

938 Sugarcane Handler

STANDARD EQUIPMENT

OPERATOR ENVIRONMENT

- 75 mm (3 in) retractable seatbelt
- Automatic temperature control
- Cab, enclosed ROPS/FOPS pressurized and sound suppressed
- Push to Start
- 8 Inch Touch Screen
- Programmable Joystick
- Cup holders
- Internal mirrors (2)
- External mirrors with lower parabolic
- Ground level cab door release
- Hydraulic control lockout
- Interior cab lighting, door
- Lunch box storage
- Radio ready speakers
- Seat mounted electronic implement controls, adjustable
- Sliding glass on side window
- Column mounted multi function control lights, wipers, turn signal
- Suspension seat, fabric
- Tilt and telescoping steering wheel
- Tinted front glass
- Wet arm wiper/washer, 2-speed and intermittent, front
- Wet arm wiper washer, rear
- Mounting Provision
- Digital hour meter, odometer and tachometer
- Digital ground speedometer and direction indicator
- Engine coolant temperature gauge
- Fuel and diesel exhaust fluid levels
- Hydraulic oil temperature gauge

POWER TRAIN

- Cat C7.1 engine
- Auto idle shut down feature
- Auto Engine RPM
- Meets Brazil MAR-1 emission standards, equivalent to U.S. EPA Tier 3 and EU Stage IIIA.
- Turbocharged and aftercooled
- Filtered crankcase breather
- Selective catalyst reduction
- Auto Differential Lock
- Power Modes (standard and performance)
- Dry type air cleaner
- Coolant protection to -34 °C (-29 °F)
- Fuel priming pump, automatic
- Fuel water separator
- Differential lock in front axle
- Axle seal guards
- Enclosed wet disc full hydraulic brakes
- Parking brake, electric
- Lubed for life driveshafts
- Hydrostatic transmission with electronic control
- Operator modes (TC, Hystat, Single Pedal and Ice)
- Directional shift aggressiveness (fast, medium, slow)
- Auto Wheel Torque control, adjust wheel torque
- Creeper control, adjust ground speed
- Single plane cooling package, wide 6 fins per inch density
- Hydraulically driven demand cooling fan
- Scheduled Oil Sampling (S-O-SSM) port, engine, coolant, transmission
- High flotation 750/65R26 agricultural tires

HYDRAULICS

- Automatic lift and bucket kickouts, adjustable in-cab
- Bucket and fork modes, adjustable in-cab
- Cylinder damping at kickout and mechanical end stops
- Fine mode control (fast, medium, slow)
- Hydraulic response setting (fast, medium, slow)
- Hydraulic diagnostic connectors and S-O-S ports
- Hydraulic sight gauge, visible
- Load sensing hydraulics and steering
- Seat mounted hydraulic joystick controls

ELECTRICAL

- Alternator, 115-amp, heavy duty
- 12V power supply in cab (2)
- Batteries, 1,000 CCA (2) 24-volt system, disconnect switch
- Back up alarm
- Emergency shutdown switch
- LED rear stop and turn lights
- Heavy duty gear reduction starter
- Product Link™ Elite
- Remote jump start post
- Resettable main and critical function breakers
- LED roading lights front and rear

OTHER

- Large-access enclosure doors with adjustable close/open force
- Debris package (medium)
- Reversing fan, hydraulically driven on-demand
- Cyclonic engine air precleaner
- Parallel lift loader linkage
- Recovery hitch with pin
- Lockable compartments

OPTIONAL EQUIPMENT

OPERATOR ENVIRONMENT

- Joystick steering – 25 mph (40 kph) capable
- Radio packages
- Deluxe seat – fully adjustable fabric air suspension seat with mid seat backrest
- Premium seat – fully adjustable leather and fabric air suspension with high backrest and air lumbar support. Seat is heated and ventilated on bottom cushion and backrest.
- Rear Object Detection
- Multi View Camera
- Front View Camera, roof mounted
- Heated external Mirrors (2)
- Electrically adjustable and heated external mirrors (2)
- Sunscreen, front and rear
- Operator Not Present system
- Powered precleaned for cab air
- Cab guarding

POWER TRAIN

- Differential, limited slip, rear
- Powertrain Guarding
- Range of Tire Options
- Fenders (extended cover and full coverage)

HYDRAULICS

- Auxiliary flow, third and fourth function
- Ride Control System, adjustable via display
- Autolube, integrated in display
- Debris packages (low, medium, high)

ELECTRICAL

- Cold start package
- Ether starting aid, block heater and additional batteries, 1,000 CCA (4 total)
- Lights, auxiliary, halogen or LED with engine compartment lights
- Beacon light, strobe
- Light Guarding

OTHER OPTIONAL EQUIPMENT

- Heavy Counterweight
- Cat Payload Printer
- Cylinder Guarding
- Range of Work Tool Attachments
- Cat Detect with Object Detection

NOTE: Not all features are available in all regions.

938 Sugarcane Handler



For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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