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Crawler Tractors (EM01)

Model Charts: B,G,J,L,M,N,W,Z

A self-propelled, tracked machine used to exert a push and pull force through mounted equipment (dozer, drawbar, or ripper) to move objects or material.

Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)







Wheel Loaders (EM04)

Model Charts: B,D,G,H,I,J,K,L,M,O,U,W,X,Y,Z

A wheeled vehicle which is equipped with a loader bucket on the front and is used primarily for loading materials, scooping and moving loose materials. May articulate or have other attachments.

Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)

Dual Dimension Full Turn Tipping Load (ISO – 14397-1-2007, and 7546-1983)

Operating Weight (KG)

Hinge Pin Height (mm)

¹The following shall serve as a guideline for determining and calculating the full turn tipping load:

Standard Configuration Details:

Lifting Arm System: For a particular model, this should be based upon the machine model's most widely accepted lifting arm (boom) system for that model. Examples of different linkage systems would be standard length z-bar linkage, hilift linkage, or optional special application booms. Make sure you pick the most predominant lifting arm that your organization sells for that model if it has an optional arm system.

Nominal bucket Size and Bucket Mounting System: Select the bucket size as is recommended in your bucket selection chart or rated operating capacity to handle typical density construction aggregates in the range of 1660-1900 kg/m³ (2800-3000 lbs/yd³) or closest bucket size to this density range if not offered. For wheel loaders < 40 metric ton operating weight, a general purpose bucket with Bolt-on edge is recommended. For wheel loaders > 40 metric ton operating weight, a spade nose rock bucket with teeth and segments is recommended.

Wheel loaders typically have the bucket installed with either coupler system or have a direct pin-on bucket to the loader arm (boom). For a particular model the bucket mounting configuration should be pin-on, recognizing that pin-on type is the most widely accepted bucket attachment method. In the event that no pin-on bucket is available, then the weight and tipping load for that models attachment coupler version with bucket should be calculated and reported.



Wheel Loaders (EM04) (cont.)

Tires – The highest percentage usage tire size and style should be utilized. Tires with ballast should not be used. Loader models typically have optional tire styles and sometimes sizes which affect the height of the loader height, operating weight, and tipping load. Do not assume the tire listed in the brochure is the predominant tire for that model as the advertising brochure may have a heavier weight tire style and size specified to show increased tipping load values for advertising purposes.

Fuel Tank & Other Options – Standard configuration assumes the machine is configured in the most usual configuration as specified by the manufacturer, and with an operator (75 kg), full fuel tank and all fluid systems (i.e. hydraulic oil, transmission oil, engine oil, engine coolant) at the levels specified by the manufacturer in accordance with ISO 7131:2009 (E) section 3.2.1 operating mass. If the majority of a particular model is sold with optional counterweighting to allow the fitment of larger capacity buckets or coupler bucket systems, then your models standard configuration should reflect this.

Attribute Definitions and Guidance:

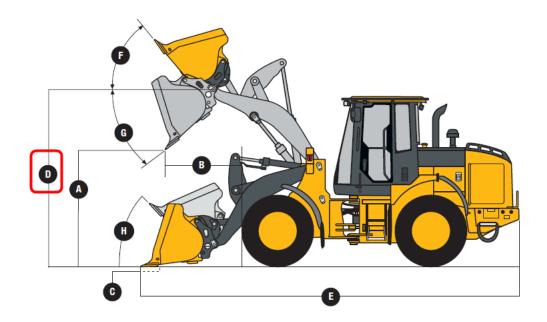
Full Turn Tipping Load. This should be calculated without deflection of the tires in accordance with ISO 14397-1 sections 1-5 and is in alignment with the current EM04 Wheel Loaders tipping load attribute requirement. When choosing this specification from published advertising materials make sure you are using Full Turn Tipping Loads rather Straight Tipping Loads which are also typically advertised but are 10-20% higher and could make the model be erroneously reported into a higher size class. This is common error for reporters not familiar with wheel loader specifications.

Operating Weight (Mass). This is the mass of the standard configuration as defined above and reported in kg.

Height to Hinge Pin, fully raised. The vertical distance in mm from ground reference plane to the center of bucket or coupler hinge pin with the boom in the fully raised position. The hinge pin height is shown as dimension D in the diagram below.



Wheel Loaders (EM04) (cont.)







Motor Graders (EM07)

Model Charts: B,G,J,L,M,N,W,Z

Self-propelled machines having an adjustable blade positioned between the front and rear axles to cut, move, and spread material, usually to grade requirements.

Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)





Rigid Frame Haulers (EM08)

Model Charts: G,J,K,L,N,W,Z

Off-highway vehicle for carrying loads where the engine compartment, cab, and cargo compartment are mounted on a continuous chassis with no more than 2 axles. Vehicle designed for operations which prevent onroad/commercial transportation use.

Reporting Classifications: Based on Rated Capacity in Metric Tons







Articulated Haulers (EM58)

Model Charts: B,G,J,L,M,N,W,Z

On- and off-highway vehicle for carrying loads. These vehicles have the load-carrying dump body and its associated frame, suspension, and drive wheels connected to the operator's compartment, engine compartment, front suspension, and steering wheels through an articulated joint that gives a limited range of vertical and horizontal movement. Vehicle designed for operations mostly on hard-surfaced or graded roads with some work over unprepared surfaces.

Reporting Classifications: Based on Rated Capacity in Metric Tons







Pipelayers (EM71)

Model Charts: G,N,W,Z

A self-propelled, non-rotating platform, tracked machine built for the purpose of handling pipe.

Reporting Classification: Based on Net Engine Horsepower (SAE J1349)

Dual Dimension: Lift capacity in Metric Tonnes

Activity: 008,019





Crawler Excavators (EXHC)

Model Charts: B,G,H,J,L,M,N

A crawler based mobile machine which has an upper structure capable of continuous rotation and which digs, elevates, swings, and dumps material by action of the boom, the arm, or telescoping boom and the bucket. Zero tail swing units are defined as machines in which the counterweight does not exceed the total width of the fixed tract or of a fully expanded track during a 360 degree rotation. Minimal tail swing is a unit in which "tail Swing Radius" divided by the "Track Gauge" (at extended position) does not exceed 75%. This calculation eliminated the impact of the shoe width variance. Note: Track gauge-the distance between the center of the tracks (in the extended position).

Reporting Classifications: Based on Working Weight in Metric Tons

















Wheel Excavators (EXHW)

Model Charts: B,G,L,M,N,W,Z

A wheel based mobile machine that is not truck mounted, hosts one cab, and includes an upper structure capable of continuous rotation and which digs, elevates, swings and dumps material by action of the boom, the arm or telescoping boom and the bucket.

Reporting Classifications: Based on Working Weight in Metric Tons











Loader/Backhoes (IF18)

Model Charts: B,D,G,I,J,K,L,M,N,O,U,W,X,Y,Z

A ride-on dual purpose self-propelled wheeled machine for on and off-road operation. One end with loader arms that can support a full width bucket or attachment and the other end incorporating a two piece boom and arm combination capable of swinging half circle for the purpose of digging or attachment manipulation.

Reporting Classifications: Based on two dimensions

- a. Net Engine Horsepower (SAE J1349)
- b. Digging Depth, rated in U.S. feet, based on a 2 foot flat bottom trench Activity: 001,002,003,008,010,011,019,021,106,330,419









Skid Steer Loaders (IF11)

A self-propelled machine with wheels and tires that is steered using variation of speed and/or direction of rotation between wheels on opposite sides of the machine on fixed axels. It is primarily designed to do work by attachments or implements fastened to a lift arm or chassis. The operator of this unit is seated inside a ROPS (Rollover Protection Structure).

Reporting classification: Based on Pounds 50% of tipping Load per ISO J14397 Standard









Compact Track Loaders (IF12)

A self-propelled machine with a dedicated track system (not tracks over wheels and tires), which can be steel, rubber, or other composite compounds, that is steered by using variation of speed and or direction of rotation between tracks on opposite sides of the machine. It is primarily designed to do work with attachments or implements fastened to a lift arm or chassis. The operator of this unit is seated inside a ROPS (Rollover Protection Structure) Does not include those machines where the operator either walks behind or stands on the machine.

Reporting classification: Based on Pounds 35% of tipping Load per ISO J14397 Standard





Rough-Terrain Forklifts, 2 Wheel Drive, Vertical Mast (IF21)

A 2 wheel-drive machine with large pneumatic drive tires designed to pick up and carry loads over unimproved terrain with a vertical mast.

Reporting classification: Capacity at 24" Load Center in 1000's of U.S. Pounds





Telescopic Handlers (IF26)

A rough-terrain variable-reach material handling machine, which utilizes a telescopic boom to place loads, perform light material handling with buckets, and may be coupled with a wide variety of work tools. It has a rigid frame with four-wheel steering. Used in agriculture and general construction applications.

Reporting classification: Classifications Based on two dimensions:

- a. Capacity at 500 mm Load Center in metric tons and
- b. Lift height by meters at maximum lift height.



















Roto Telescopic Handlers (IF27)

A rough-terrain, variable-reach material handling machine, which utilizes a telescopic boom to place loads. Through its structure it offers a higher maximum lift height than fixed telescopic handlers. It has a rigid frame with four-wheel steering.

The upper structure with cabin and telescopic boom is capable of a 360 degree rotation, allowing the user to cover a wider working area in stationary working. The machine needs to use four stabilizers to handle maximum weight at the maximum lift height with a cab rotation.

The machine is primarily used in construction applications, making use of specific attachments (rarely forks).

Reporting classifications: Lift Height by meters at maximum lift height.















Crawler Loaders (EM02)

Model Charts: L,N,W,Z

A self-propelled, tracked machine with an integral front-mounted bucket supporting structure and linkage that loads material into the bucket through forward motion of the machine and lifts, transports, and discharges material.

Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)

Activity: 001,002,003,011,021,101,106





Forestry Terms

To better understand forestry terms, see definitions below.

Felling	Separating a standing stem from the root system
Bunching	The gathering and arranging of trees or parts of trees in bunches or heaps
Delimbing	Removing branches from trees or parts of trees
Harvesting	Cutting off and removing branches from trees or parts of trees
Loading	Picking up trees or parts of trees from the ground, or from a vehicle and piling them on another vehicle
Forwarding	Moving trees or parts of trees by carrying them
Skidding	Transporting trees or parts of trees by trailing or dragging



Crawler Mounted Log Loaders (EX01)

Model Charts: L,O,X,Y

A purpose built mobile, crawler based machine with an upper structure capable of continuous rotation and equipped with a live heel or a dead heel logging front end designed for use with a freely suspended tree grapple. The primary application is picking-up and discharging trees or parts of trees for the purpose of piling or loading.

Reporting classifications: Based on published operating weight in metric tonnes, configured for a typical forestry log loading application complete with live heel logging front excluding any grapple or arm/heel tip mounted attachments.









Purpose-Built Crawler Mounted Tree Harvesters or Processors (EX02)

Model Charts: O,X,Y

A purpose built mobile, non-excavator, crawler based machine with an upper structure capable of continuous rotation designed to cut, delimb and crosscut standing or pre felled trees to length.

Reporting classifications: Based on published operating weight in metric tonnes, configured with a boom and arm for a typical forestry harvesting or processing application, excluding harvesting or processing attachments.







Crawler Mounted Swing-to-Tree Feller Branchers (EX04)

Model Charts: N,W,Z

A purpose built mobile, non-excavator, crawler based machine with an upper structure capable of continuous rotation and equipped with a boom and arm designed for installation of a felling head for cutting standing trees and arrange them in bunches. A swing-to-tree feller buncher is characterized by the ability to cut and pile standing trees with machine in a stationary position.

Reporting classifications: Based on published operating weight in metric tonnes, configured with a boom and arm for a typical forestry feller buncher application, excluding tree cutting attachments.

Activity: 001,002,003,010,011,019,021,106







General Forestry Crawler Swing Machines (EX05)

Model Charts: L,N,W,Z

A purpose built mobile, crawler based machine with an upper structure capable of continuous rotation and designed for multiple forestry applications including but not limited to; delimbing, forestry road building, processing, harvesting and silviculture. A general forestry machine is usually excavator based and excludes machines reported in EX01, EX02, or EX04 or EXHC. Final configuration is often unknown at time of manufacturer and shipment, typically being field converted.

Reporting classifications: Based on operating weight in metric tonnes of the base machine configured for a typical general forestry application complete with excavator style (arch) boom and arm, excluding any arm tip mounted forestry or excavation attachment.

Activity: 001,002,003,010,011,019,021,106





Purpose Built Wheeled Tree Harvesters or Processors (EX06)

Model Charts: N,W,Z

A purpose built, wheeled mobile machine equipped with a variable reach boom and attachment which is able to fell, de-limb and crosscut to length standing trees.

Reporting classifications: Based on engine power (ISO)

Activity: 106,021,001,003,010,011,019,002





Wheel Log Skidders (IF10)

Model Charts: N,Z

Single-function harvesting machine used in the forest industry. A wheeled machine designed to slide or drag logs from the tree stump to a landing.

Reporting Classifications: Based on Mutual agreement between participating members. Log Skidders are sized by Competitive Marketing into Class A, B and C.

Activity: 106,020,008,001,003,010,011,019,002







Forwarders (IF51)

Model Charts: O,X

Single-function harvesting machine used in the forest industry. Selfpropelled machine, usually self-loading, designed to transport trees and parts of trees by carrying them completely off the ground.

Reporting Classifications: Based on Load Capacity in Metric Tons

Activity: 001,002,003,010,011,019,020,102







Knuckleboom Loaders (IF61)

Model Charts: N,W,Z

A machine with dedicated power source, grapple, and rotating upper supporting structure and boom linkage designed to pick up and discharge trees or parts of trees for the purpose of piling, loading, or processing.

Reporting Classifications: Based on Operating Weight in Metric Tons





Drive-to-Tree Feller Bunchers, 4 Wheel (IF62)

Model Charts: N,W,Z

An articulated, four wheel, tractor with a hydraulic shear or saw designed to fell standing trees and arrange them in bunches. The machine can accumulate and carry the felled trees in the felling head.

Reporting Classifications: Based on Gross Engine Horsepower (SAE rated)







Vibratory Roller Walk-Behind, 1D (CEA1)

Walk behind vibratory roller with a single heavy-duty machined steel drum used for a wide variety of asphalt and soil compaction applications.

Reporting classification: by Metric Ton







Vibratory Roller Walk-Behind, 2D (CEA2)

Walk behind vibratory roller with dual heavy-duty machined steel drums used for a wide variety of asphalt and soil compaction applications

Reporting classification: by Kilograms



















Trench Rollers Double Drum (CEA3)

Walk behind, remote controlled or ride-on vibratory roller with dual heavyduty machined steel drums for the compaction of base coarse, various sizes of aggregate and a variety of soil conditions. These rollers are used for operation in confined areas such as trenches where turning would otherwise be difficult if not impossible.

Reporting classification: by Metric Tons













Vibratory Tandem Roller, 2D (CEB0)

Ride-on steel wheel roller with two (double drum) drums mounted on tandem axles, which compacts pavement using the combined force of the roller's weight and the vibration of the drums.

Designed for compaction of bitumen mixtures and other types of layers in a variety of construction projects

Reporting classification: by Metric Tons and Drum Width

































Vibratory Tandem Roller, 1D (CEC0)

Ride-on steel wheel roller with two (double drum) drums mounted on tandem axles, which compacts pavement using the combined force of the roller's weight and the vibration of the one drum.

Designed for compaction of bitumen mixtures and other types of layers in a variety of construction projects. Machine looks like any other tandem, vibratory, roller except that only one of the drums will vibrate.

Reporting classification: by Metric Tons











Vibratory Tow – Smooth (CED1)

Tow behind vibratory roller with a smooth drum. Designed for the compaction of unbound soil applications such as sand, gravel, and mixed soils.



Vibratory Single Drum – Asphalt (CEE1)

Roller with one vibratory drum used to compact asphalt using the combined force of the drum's weight and the vibration of the drum. Look almost identical to a single drum soil compactor, except for the smooth rear tires and the front mounted water tank. Designed for compaction of bitumen mixtures and other types of layers in a variety of construction projects.





Vibratory Single – Soil Smooth (CEE2)

Roller with one, smooth, vibratory drum and tires on the rear used to perform compaction on water bound materials, sand, gravel and subbases, and a variety of soil compaction jobs, such as granular soil jobs, cohesive soil jobs, streets and roads, parking areas and building sites, Versatile with good maneuverability in confined areas.

Reporting classification: by Metric Tons an Drum Width







































Vibratory Single Drum – Soil Padfoot (CEE3)

Roller with one padfoot drum used to perform a variety of soil compaction jobs; such as cohesive and high water content materials. Versatile with good maneuverability in confined areas.

Reporting classification: by Metric Tons and Drum Width













Combination Rollers (CEF0)

Roller with one vibratory, smooth drum and a set of tires of similar width as the drum width used to compact a combination of surfaces including bituminous mixtures in large works, base, intermediate and running layers, but also in non bituminous mixtures like gravel, cement, dry concrete, stabilized soils. Versatile with good maneuverability in confined areas.

















Pneumatic Tired Roller (CEG0)

A roller that uses rubber tires mounted on the front and rear of the compactor. The wheels that the tires are mounted to oscillate, which means they are capable of moving up and down independently of each other or in groups. The pneumatic roller compacts by using the combined force of weight and the kneading action of the rubber tires.

Sized by: Tonnes Max Wheel Load























Tandem Roller (Static) (CEH1)

A steel wheel roller with two drums mounted on tandem axles, which compacts a pavement using the force of the roller's weight.



3 Wheel Roller (Static) (CEH2)

A steel wheel roller with three drums, two drums mounted on one axle and a smaller drum mounted on one axle, which compacts a pavement using the force of the roller's weight. The configuration of the drums on a three-wheel roller allows it to compact longitudinal joints without interfering with traffic in the adjacent lane.







Embankment – Pad/Sheep (CEK1)

Soil compactors primarily designed to densify or pack soil resulting in increased weight per unit volume. Designed to use one or a combination of static weight (or pressure), kneading action (or manipulation), impact (or sharp blow), or vibration (or shaking).







Refuse – Pad/Sheep (CEK2)

Refuse/landfill rollers are specialized equipment primarily designed for spreading and compacting large volumes of waste in a landfill environment. These rollers are configured and guarded to work in a waste environment and are capable of achieving superior compaction levels













Vibratory Plate – Forward (CEL1)

A hand operated vibratory plate that is used in the forward moving compaction of granular loose soils and gravels in the creation of firm and stable surfaces. Plate compactors are also used to set the paving stones in the sand bed and to settle the joint sand. Vibratory plates operate in confined areas for the compaction of sand, gravel and crushed aggregate, as well as hot and cold asphalt.

Reporting classification: by Kilograms





Vibratory Plate – Reverse (CEL2)

A hand operated or remote controlled reversible vibratory plate that compacts sand, gravel, and cohesive soils such as clay and silt. The vibratory plate has reversing and stationary features that allow compaction in confined areas where turning is difficult – or even impossible – for a non-reversing unit. Highly maneuverable, they are ideal for tightly confined areas

Reporting classification: by Kilograms





Vibratory Tampers (CEM0)

A hand operated vibratory tamper that typically has a low center of gravity and a variable column guide. Tampers have a horizontal force component for moving forward. They are typically used to compact bituminous material in a very confined space.









Tracked Asphalt Pavers (CEAT)

Self-propelled tracked machine (either steel tracks or rubber tracks) consisting of a tractor of a certain width designed to tow an asphalt screed of a certain width, used to distribute, shape, and partially compact a layer of asphalt on the surface of a roadway, parking lot or other area. The paver receives asphalt, conveys it through the tractor and distributes it in front of the screed.

Reporting Classification: basic screed width in meters [m]



Wheeled Asphalt Pavers (CEAW)

Self-propelled wheeled machine consisting of a tractor of a certain width designed to tow an asphalt screed of a certain width, used to distribute, shape, and partially compact a layer of asphalt on the surface of a roadway, parking lot or other area. The paver receives asphalt, conveys it through the tractor and distributes it in front of the screed.

Reporting Classification: basic screed width in meters [m]



Cold Planers (CPRM)

Self-propelled construction machine (either rubber-tired or crawler mounted) specifically designed to cut a pavement to a predetermined depth, grade or slope, and which reduces the pavement material in size in the process, using a rotating drum equipped with special cutting tools. This milling machine is designed to restore pavement surface to a specified grade and slope; remove bumps, ruts, and other imperfections; and leave a textured surface that can be opened immediately to traffic or overlaid with new pavement materials.

Reporting classification: by Inches





Asphalt Pavers (CEAP)

Self-propelled machine (either rubber-tired or crawler mounted) consisting of a tractor of a certain width designed to tow an asphalt screed of a certain width, used to distribute, shape, and partially compact a layer of asphalt on the surface of a roadway, parking lot or other area. The paver receives asphalt, conveys it through the tractor and distributes it in front of the screed.

Reporting classification: by Combination of Horsepower and Under Carriage

































Road Reclaimers/Soil Stabilizers (Horsepower) (RS01)

Road reclaimers are self-propelled machines that pulverize the asphalt layer and mix it with the underlying base to stabilize deteriorated roadways. Reclaimers can add asphalt emulsions or other binding agents during pulverization or during a separate mix pass. Soil stabilizers are self-propelled machines that cut, mix and pulverize native in-place soils with additives or aggregates to modify and stabilize the soil for a strong base. Different cutting depths are available to match job requirements.

Reporting classification: by Horsepower













