In an effort to ensure understanding of the products reported into the Forestry, Earthmoving and Excavator (FEE) Statistics Committee reporting programs the following definitions have been developed

**EARTHMOVING EQUIPMENT**

**Crawler Tractors (EM01)**
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)

**Crawler Loaders (EM02)**
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)
Wheel Loaders (EM04)
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)

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

The calculation of the full turn tipping load should be based on a manufacturer's Standard Configuration (Options, bucket, tires, etc.) handling 16-32 mm crushed stone (aggregate).

Standard Configuration – tipping load for a particular model should be based upon the machine model's most widely accepted lifting arm system, utilizing the machine model's most widely accepted Bucket mounting configuration.

Most widely accepted lifting arm system – Refers to the primary and most frequently purchased lifting arm for a given machine model. Examples include Z-Bar or Parallel linkage or any other type of linkage purchased in considerable numbers.

Bucket – Most widely accepted bucket size and mounting configuration used for a specific machine model recognizing that pin-on type is the most widely accepted bucket attachment method. In the event that no pin-on bucket is available to be used for the calculation, then the tipping load for the model attachment coupler version with typical bucket should be calculated and reported. For wheel loaders < 40 ton operating weight, a general purpose bucket with Bol-on edge is the recommended calculation. For wheel loaders > 40 ton operating weight a spade nose rock bucket with teeth and segments is the recommended calculation.

Tires – Highest percentage usage tires should be utilized for the calculation. Tires with ballast should not be used. The tipping load should be calculated without deflection of the tires. Tires are specified under a Declaration of Machine Configuration and the air pressure should follow the manufacturer's recommendations.

Fuel Tank & Other Options – Calculation assumes a full fuel tank and no other optional equipment which could influence the tipping load, such as an optional counterweight, heavy guarding's, etc.
Motor Graders (EM07)
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)
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 on-road/commercial transportation use.

Reporting Classifications: Based on Rated Capacity in Metric Tons
**Articulated Haulers (EM58)**

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

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**Wheel Dozers (EM60)**

A wheel dozer is a rubber-tired piece of equipment equipped with a blade assembly used for spreading and compacting without vibratory means. This equipment can accomplish mass leveling tasks for agriculture, construction, forestry, heavy construction, industrial needs, open pit mining, and similar earthmoving requirements.

Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)
Pipelayeers (EM71)
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

Scrapers (EM72)
A scraper propelled by a towing machine on which the operator’s station is located. The machine is equipped with a bowl with a cutting edge positioned between the axles. The machine cuts, loads, transports, discharges, and spreads material through its forward motion. The towing machine may be a separately sold tractor or permanently attached tractor thus making it a self-propelled scraper.

Reporting Classifications: Based on Cubic Yard Heaped Capacity

Underground Haulers (EM80)
Off-highway low profile vehicle for carrying loads through underground mines. These vehicles have the load-carrying dump body and its associated frame, suspension, and drive wheels connected to the operators compartment, engine compartment, front suspension, and steering wheels through an articulated joint that gives a limited range of vertical and horizontal movement, the cab is low profile and off-center. Vehicle designed for operations mostly on hard-surfaced or graded roads with some work over unprepared surfaces.

Reporting Classifications: Based on Tonnes Maximum Payload
**Underground Loaders (EM81)**

A wheeled vehicle which is equipped with a low profile loader bucket on the front and is used primarily for loading materials, scooping and moving loose materials through underground mines. It is able to unload material into underground dump trucks. The cab is low profile and off-center and may articulate or hand other attachments.

**HYDRAULIC EXCAVATORS**

**Crawler Excavators (EXHC)**

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 Guage" (at extended position) does not exceed 75%. This calculation eliminated the impact of the shoe width variance. Note: Track guage-the distance between the center of the tracks (in the extended position).

Reporting Classifications: Based on Working Weight in Metric Tons
Wheel Excavators (EXHW)

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 AND LOADER WHEEL TRACTORS

Loader Wheel Tractors (IF14)

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, the other end may have a rear attachment like a three-point hitch, drawbar, counterweight or other attachment.
Reporting Classifications: Based on Net Engine Horsepower (SAE J1349)

Loader/Backhoes (IF18)

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)
AND
Digging Depth, rated in U.S. feet, based on a 2 foot flat bottom trench
**FORESTRY PRODUCTS**
(to better understand forestry terms, see definitions at the end of this listing)

**Brush Tree Chippers (EV01)**
A Brush Chipper uses sharp knives to reduce cut trees, branches, vines and foliage materials to a small size that allows for efficient, economical handling and transport from the worksite. Brush Chippers are most commonly used in cleanup of a residential and commercial building tree care and/or landscaping worksites, and by local government/utilities (parks, road, and utility right of way)

**Whole Tree Chippers (EV02)**
A Whole Tree Chipper uses sharp knives to reduce forest materials to a desired size that a) meets the needs of a purchasing industry and/or b) allows for efficient, economical handling and transport from forest to point of purchasing industry. Whole Tree Chippers are most commonly used on a forest landing or in an industry wood yard.

Reporting Classification: Inches
Horizontal Grinders (EV03)

Commonly used to process woody materials generated from land-clearing, storm cleanup/municipal waste, compost operations, tree-care, log debarking and processing (at lumber or pulp mills), light construction/demolition debris, and wood waste. Feedbed equipped, suitable for mechanical loading using a loader or excavator. Designed with an infeed roller that feeds material horizontally into the hammermill. A spinning high-speed mill that tears or rips fed material using hardened-face tools, fixed or swinging, that force the material thru screens when the desired size is achieved. Material discharge is via a conveyor belt, thrower, and/or auger system. Examples of uses for grinder product are landscape mulch, animal bedding, ground cover, compost, and biofuels. Can either be stationary electric, or towable for multiple site use.

Reporting Classification: Horsepower
**Crawler Mounted Log Loaders (EX01)**
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)**
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 Bunchers (EX04)**
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.

**General Forestry Crawler Swing Machines (EX05)**
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; delimming, 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.
**Purpose Built Wheeled Tree Harvesters or Processors (EX06)**
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)

**Wheel Log Skidders (IF10)**
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.

**Forwarders (IF51)**
Single-function harvesting machine used in the forest industry. Self-propelled 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

*Suspended*
**Knuckleboom Loaders (IF61)**
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)**
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)*
### Forestry Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>Felling</td>
<td>Separating a standing stem from the root system</td>
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<tr>
<td>bunching</td>
<td>The gathering and arranging of trees or parts of trees in bunches or heaps</td>
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<tr>
<td>Delimbing</td>
<td>Removing branches from trees or parts of trees</td>
</tr>
<tr>
<td>Harvesting</td>
<td>Cutting off and removing branches from trees or parts of trees</td>
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<tr>
<td>Loading</td>
<td>Picking up trees or parts of trees from the ground, or from a vehicle and piling them on another vehicle</td>
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<tr>
<td>Fowarding</td>
<td>Moving trees or parts of trees by carrying them</td>
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<tr>
<td>Skidding</td>
<td>Transporting trees or parts of trees by trailing or dragging</td>
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