ECOLAWN APPLICATOR® INSTRUCTIONS MANUAL

Model ECO 250 – 5.5 HP Honda Commercial self-propelled top dresser

LANDSCAPING PROFESSIONALS' #1 Choice for TOP DRESSER





960 Leon-Trepanier Sherbrooke (Quebec) CANADA J1G 5J6 **THANK YOU** for purchasing an Ecolawn Top Dresser. Your new machine has been carefully designed and manufactured to provide years of reliable and productive service. This manual will provide you with safety instructions and general maintenance tips that will help to keep your machine in top running order. Please read this manual and assembly part/list carefully before assembling, operating, or servicing your equipment.

Here are 5 Ecolawn Basic Rules of Operations:

- 1. Use quality screened material or compost;
- 2. Use appropriate load size and weight;
- 3. Load hopper gently to prevent loading compaction;
- 4. Plan the application before spreading it;
- 5. Test the spreader by first running it empty. A good application means preparing ahead of time. Make small adjustments in the field and eliminate major repairs.

Please visit our website or call with any questions.

Website: www.ecolawnapplicator.com

Tel: 1-866-326-5296

A good application means preparing ahead of time!

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Engine

The Ecolawn Applicator's gear casing is filled with oil (SAE 30) before shipping, but the oil level must be checked to ensure that it is filled to the proper level before operation. The **engine does not** have oil and must be filled to proper level before starting. Use lead-free gasoline only. DO NOT USE OIL/GAS MIXTURE. Please refer to the Engine Manual for additional information.

Ecolawn Applicator® One Year Limited Warranty

Terms: Ecolawn Applicators are guaranteed to be free of defects in materials or workmanship for one year from the registered purchase date. To qualify, the applicator must be registered online at www.ecolawnapplicator.com (under the product tab). This one-year warranty is extended only to the original, registered purchaser of the Ecolawn Applicator.

Starting from the registered purchase date, Ecolawn will replace, free of charge, any part(s) on the machine (excluding the engine*) that Ecolawn or an approved agent deems to be defective in material and/or workmanship upon examination.

* Note: The engine is covered by its own guarantee; see engine manual for details.



EU Authorised Representative

Herco Machinery
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Hand/arm vibration level A(8) = 0.50 m/s2



ORIGINAL

EC DECLARATION OF CONFORMITY

We, the undersigned,

ECOLAWN APPLICATOR

960 Leon-Trepanier Sherbrooke (Quebec) CANADA J1G 5J6

declare that the machinery described below

Ecolawn Applicator, model ECO 250, Serial number 1915 fitted with a Honda engine GX160 with a net power of 4kW

used to spread various substrates on lawns, complies with the provisions of the following European Directives:

The Machinery Directive 2006/42/EC

and is in conformity with the applicable requirements of the following norms:

- ISO 12100:2010 Safety of machinery -- General principles for design -- Risk assessment and risk reduction
- ISO 3744:2010 Acoustics -- Determination of sound power levels and sound energy levels of noise sources using sound pressure -- Engineering methods for an essentially free field over a reflecting plane
- ISO 5395-1:2013/Amd 1:2017 Garden equipment -- Safety requirements for combustion-enginepowered lawnmowers
- ISO 5349-1:2001/AWI Amd 1 Mechanical vibration -- Measurement and evaluation of human exposure to hand-transmitted vibration -- Part 1: General requirements
- ISO 5349-2:2001/Amd 1:2015 Mechanical vibration -- Measurement and evaluation of human exposure to hand-transmitted vibration -- Part 2: Practical guidance for measurement at the workplace
- ISO 20643:2005/Amd 1:2012 Mechanical vibration -- Hand-held and hand-guided machinery --Principles for evaluation of vibration emission
- ISO 14120:2015 Safety of machinery -- Guards -- General requirements for the design and construction of fixed and movable guards
- Industry Canada ICES-002, issue 6:2013 Vehicles, Boats and Other Devices Propelled by an Internal Combustion Engine, Electrical Means or Both

EC Declaration of Conformity - ECO 250

1 of 2



The noise measurements have been made in accordance with ISO 3744 and ISO 3746. The vibration measurements have been made in accordance with ISO 5349-2. The tests have been conducted by Akoustik Ingénierie et Conseils (9, rue des Champs, 59 290 WASQUEHAL, France) on January 31st 2019.

The declared noise and vibration values are as follows:

Acoustic power - Lw= 98.0 dB(A)

Vibration exposure - A(8)= 0.50 m/s²

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature:_

Daniel Côté

President and Founder

Sherbrooke, February 28th 2019

The technical documentation of the machinery is available from:

Herco Machinery Niels Van Dijck Address Hermans Company bvba Ambachtsweg 3 BE-2310 Rijkevorsel Belgium



Machine Description

Intended use - The applicator ECO 250 is a motorized device to perform top dressing or land restoration of various residential, institutional and commercial lawns. Substrates to be spreaded are of various compositions including seeds, calcite clay, crumb rubber, lime, compost, sand or a mix of materials. The user fills the hopper with substrates and walks over the land, guiding the applicator. When operating the device, the user may or may not engage the ejection system to spread the substrates. Propulsion of the device requires the user hand(s) to maintain a spring lever handle in a depressed position, and the spreading mechanism can only be operated if the applicator is moving forward, due to the transmission system design. The engine does not have a reverse operation mode such that the applicator can only move forward.

NOTE: Do not use the machine for any other purpose.

The applicator has a dead mass of 140 kg and as much as 200 kg of substrates can be loaded at one time in the hopper, for a maximum total mass of 240 kg. It can be moved forward at a maximum speed of about 2,5 m/s or 10 km/h. The direction of the applicator is controlled by the operator by simply moving the steering hand to the left of right hand side since the rear wheels are swiveled.

The device is composed of six sub-systems:

- 1. The main frame that supports all components is standing on four wheels. The system is powered by the front wheels through a differential transmission system and the rear wheels are swiveled to facilitate steering of the machine.
- 2. The machine is powered by a GX160 Honda 5,5 HP (4 kW) four strokes lead free gas engine running at a maximum speed of 3 600 rpm.
- 3. The substrates is contained within a plastic hopper standing on a conveyer belt that brings the substrate to the spreading system.
- 4. The machine is controlled via several hand controls. A main control to engage machine motion and spreading system movement. A second hand control to engage the conveyer and spread the substrate. Additional controls are for varying the engine operating speed and the dimension of the opening to bring the substrate from the conveyer belt to the spreading system.
- 5. The main driving unit located underneath the machine to bring power to all subsystems.
- 6. The spreading system composed of two spinning wheels located at the front of the engine.



Overall Safety Instructions

This manual describes the operation of the ECO 250 Ecolawn Applicator spreader only. Engine operation is not included in this manual. Please consult the engine manual for relevant information.

General

- Never allow children to operate power equipment.
- Do not use the Ecolawn Applicator on any slope that is greater than 10 degrees.
- Do not modify the Ecolawn Applicator. Any alterations to the machine will void the warranty.
- Use the Ecolawn Applicator ONLY with both hands on the handlebar.
- Use the Ecolawn Applicator ONLY for its intended purpose.
- Keep hands and objects out of the hopper and away from the agitator/mixer while the motor is running.
- Use only original Ecolawn parts to repair the Ecolawn Applicator.

Guards

Do not run the engine or operate the machine when any of the guards have been removed. This may result in severe injury and/or damage to the unit.

Hopper

The hopper's maximum load is 440 lb (200 kg). Never exceed the maximum load capacity; this may damage the spreader.

Loading, securing and lifting the Unit

Loading - Drive the unit into the trailer, secure at the four tiedown/lift points identified on the machine. Lifting - Attach to the four tiedown/lift points identified on the machine.

Warning decals

Each warning decal meaning is explained on the next page. Replacement warning decals are available at no cost from Ecolawn.



Warning pictograms	Meaning
	Read the instructions
	Wear eye protection
	Wear breathing protection
THE POPULATION OF THE POPULATI	Wear ear protection
	Bystanders stay clear – thrown objects / rotating spreader blade
	Do not operate with guards removed



Specific Safety Caution

Regarding guards

Each guard that cover moving parts has indications printed on it that state: "Do not modify this equipment" and "Do not operate with guard removed".

Regarding the hopper

A maximum load of 200 kg (440 lbs) of substrates is allowed in the hopper. This is printed on the hopper wall facing the operator. In addition, the operator is warned to read and understand the operator's manual before using the machine.

Regarding the exhaust system

The exhaust system may get hot during operation. The following label can be found on the tank, close to the exhaust:



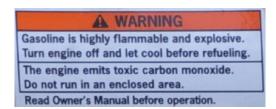
indicating that the "muffler can burn you", "stay away if engine has been running".

In addition, the following logo is printed on the metal cover that surrounds the exhaut system:



Regarding the engine

A label is affixed on the fuel tank, warning the operator of potential risk of explosion when refueling the tank. The label also warns the user that the engine emits carbon monoxide which may be toxic if the machine is operated in an enclosed area.





Residual risks

Although significant efforts have been made to ensure maximum safety of the machine, several potential risks remain.

Adjusting feeder opening

The control handle for adjusting the feeder opening is located close to the exhaust system. Always operate the handle with care to avoid slipping and touching the metal guard on the exhaust system with the hand.

Access to mixer shaft

By the nature of the machine operation, the mixer shaft remains accessible from the top of the hopper. The shaft never spins unless the machine is in movement, and therefore, the shaft is not accessible by the operator in normal operation. Indeed, the operator must operate the main handle to power the mixer shaft. Never modify the equipment to operate the mixer shaft when the machine is in a fixed position.

Operating the machine on slopes and hills

When the machine is filled with substrates, it is more sensitive to tipping over sideways. Operating on slopes and hills will further increase that sensitivity. We recommend avoiding operating the machine on slopes and hills.

Transporting the machine

Machine transport is often performed by moving the Applicator up a trailer platform. Because there is no brake unit on the machine, make sure to operate the machine safely during platform access. During descent, engaging the conveyer system will increase the braking capacity of the machine and reduce the risk of the machine passing over body segments, in case of hazardous manipulation.

Main activation handle

Contrary to many machine systems (e.g. lawn mowers), the main activation handle does not need to be depressed to start the engine. For safety reasons, depression of the main activation handle automatically makes the machine move forward. There is no moving parts unless the handle is depressed.



Operating Instructions

Proper Topdressing

When topdressing, follow the same pattern you would use when mowing. Start with the sections of lawn that are farthest away from the supply source to avoid repeated traffic over the areas that have been top-dressed.

Types of Spreading Materials:

- Screened compost
- · Granular and pelletized products
- Sand
- Soil
- Crumb rubber
- Soil amendments
- Custom blends

Optimal Operation

Never exceed the maximum load capacity of the hopper (440 lb/200 kg). Some substrates (such as sand or soil) are much denser than others, so it is not possible to judge load size visually. The same volume of sand or soil can weigh significantly more than compost. Overloading the hopper may damage the spreader.

Comparative: Materials and Weights					
Material	Volume (Cubic feet)	Weight (lbs)			
Compost: (60% humidity)	10	300			
Mix Blend: 50% compost, 50% sand	10	550			
Sand:	10	800			

Main Uses

The Eco 250 Broadcast Top Dresser is designed for compost topdressing, sand topdressing, lawn restoration and renovation, soil amending, and over seeding. To learn more about topdressing, please visit our website at www.ecolawnapplicator.com. Do not use the machine for any other purpose.



Using the Ecolawn Applicator for the First Time

Before using the spreader for the first time, check the oil and gas levels on the engine, the reducer and the fuel tank. While the spreader has been pre-adjusted for immediate use, some minor adjustments may be necessary. We recommend the following startup procedure to ensure that the machine is properly adjusted before use.

Step 1. The spreader's belts are new, so they may not adhere perfectly to the pulleys; they may slip when the machine is started for the first time until they are properly seated. Before loading the spreader with substrate, start the engine and let it idle and run it around empty for about 10 minutes to allow the belts to become seated properly on the pulleys.

Step 2. Fill the hopper to 1/3 capacity (see Page 16, Step 1), then run the spreader until empty and refill to this level for the first 3 or 4 loads.

Step 3. Fill the hopper to its maximum capacity (440 lb/200 kg) and begin using the spreader normally.

Step 4. After one hour of use, visually inspect the spreader. Vibrations combined with a heavy load may cause the nuts and bolts to loosen. Tighten these if necessary.

Step 5. After 8 hours of use, inspect the nuts and bolts again and tighten if necessary.

If some pulleys do not run correctly after these trials, please refer to Ecolawn Application: Troubleshooting and Adjustments (Page 20).



Operating the Ecolawn Applicator

Step 1. Filling the Hopper

To fill the hopper, first ensure that the Feed Trap (Figure 1) is properly closed by pulling up on the Feed Trap Lever (Figure 2).

Fill the hopper with the substrate to be spread. Note: Never exceed the hopper's maximum load capacity

(440 lbs/200 kg); this can damage the machine.

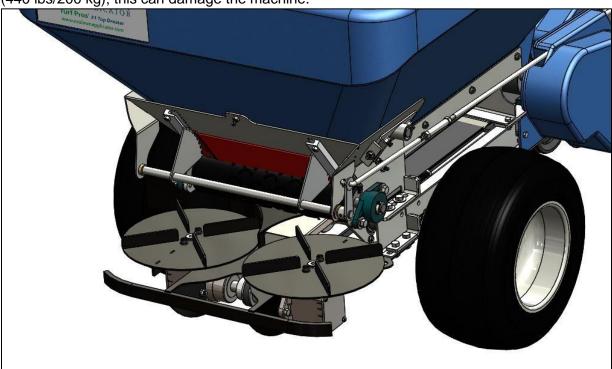


Figure 1



Figure 2



Step 2. Starting the Engine

Before starting the engine, make sure the conveyor system is not engaged. Be sure that the Conveyor Action Lever (Figure 3) is disengaged and the Feed Trap is properly closed, then start the engine. For additional information about operating or troubleshooting the engine, consult the Engine Manual.



Figure 3

Step 3: Topdressing with a Substrate

After loading the machine, start the engine. In order to spread the substrate, you must open the Feed Trap to desired height. (Figure 2). Pull the Conveyor Activation Lever toward you. Squeeze the Self-Propel Handle (Figure 4) to move the spreader forward and spread the substrate. Note: The engine's speed determines the ground speed and the width over which the substrate is spread. The height at which the feed trap is open determines the thickness at which the substrate is spread.



Figure 4



Step 4. Stopping the Spreader

When the hopper is empty, disengage the Conveyor Lever to stop the conveyor belt. Close the feed trap with the Feed Trap Lever. If filling the hopper again, propel the machine to the substrate source and release the Self-Propel Handle to stop the spreader, turn the engine off, and then refill the hopper.





Choosing an Appropriate Substance

Quality and Characteristics

It is very important to choose a high-quality topdressing substrate. For greatest cost efficiency, Ecolawn recommends using a bulk substrate which is friable, has a moisture content lower than 65%, and contains no inorganic matter (plastic, glass, or concrete, etc.) or raw organic matter (such as pieces of wood, raw manure).

Friability

A friable material is one that crumbles easily into small fragments. A substrate that is not very friable appears to be composed of numerous, compact pieces which do not readily break down. Screening a substrate makes it much more friable. Additionally, a substrate containing 10% sand is more friable and will flow more smoothly and efficiently through the applicator.

Moisture Content

A substrate with a moisture content greater than 65% will tend to stick to the inside walls of the hopper and other parts of the spreader. When working with a substrate with a high moisture content, coat the insides of the hopper, as well as the spreading disk, with a lubricant.

To help the substrate flow freely from the hopper, stop the machine and loosen with shovel. This will loosen the substrate so that it can flow freely from the hopper.



Troubleshooting and Adjustments

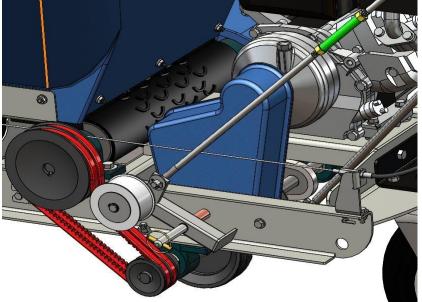
Important: Be sure the engine is turned off before performing any adjustments or maintenance on the spreader.

The most frequently encountered problems involve the conveyor, but these can be easily resolved with a few simple solutions. Check the following issue for your particular problem, and make the corresponding adjustments as needed.

<u>Issue: The V-belts are slipping. The spreader's hopper is full. The conveyor has been activated by activating the conveyor lever, but the conveyor belt does not turn because the V-belts are slipping.</u>

Solution: The V-belts (denoted in red) are not tight enough. First remove the guards from the tensioner and check the tension of the belts, which may be slipping on the pulleys that power the conveyor belt. If the tension is incorrect, adjust it by lengthening the stretch rod of the conveyor activation

clutch, a few turns at a time, as follows:

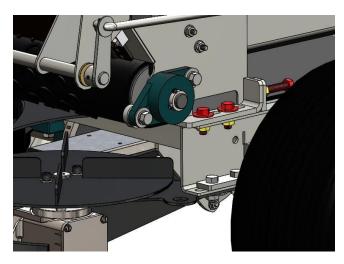


- 1.Loosen the (yellow) jam nuts to adjust the tension of the tension rod.
- 2.Turn the (green) tension collar counter clockwise to increase tension, or clockwise to reduce it.
- 3. Tighten the (yellow) jam nuts to lock the tension at the proper level.



Issue: The spreader's hopper is full. The conveyor has been activated by pulling the conveyor activation lever back, but the conveyor belt is not turning even though the tension rod has been adjusted properly and the conveyor drive roller is turning.

Solution: Adjust the tension of the conveyor belt rollers on each side, 1/2 a turn at a time, to increase the tension on the conveyor belt, as follows: do this on both sides of the unit equally.



- 1.Loosen the three (yellow) nuts.
- 2. Tighten the horizontal (red) bolt to push the conveyor belt roller forward about 1/2 turn
- 3. Tighten the three (yellow) nuts to hold the conveyor belt in place.
- 4.Repeat the same procedure on the other side, making sure the adjustments to both sides

Issue: The spreader does not move forward, or does so only with difficulty.

Solution: An adjustment to the tension of the activation arm of the Self-Propel Handle may be necessary:

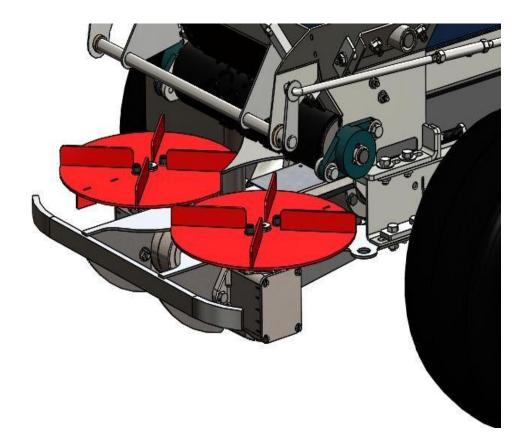


- 1.Loosen the (yellow) jam nut to release the tension.
- 2. Turn the (green) adjustment collar clockwise to increase pressure, or counter clockwise to reduce pressure.
- 3. Tighten the (yellow) jam nut to maintain the desired pressure.



<u>Issue: The spreader moves forward and the conveyor works, but the spreading disk does not spin.</u>

Solution: To free the disk, turn the machine off, and then turn the spreading disk backward manually to remove any debris. Visually inspect the pulleys and clean them as needed. If the pulley used to turn the spreading disk is filled with substrate, it may cause the belt to come off. Clean the pulley and the disk, then re-mount the belt on the pulley.





General Maintenance

Shaft Bearings

Grease the bearings after every 50 hours of operation.

Engine Oil/Filter

Change the oil and filter after every 50 hours of operation. See the engine manufacturer's instructions.

V-belts

The proper belt tension is tight enough that the belts will not slip during operation. Occasionally, belt tension must be readjusted. Do not over-adjust the tension, as this may damage other parts.





Short agitator - sand, heavy materials, for less resistance on agitator, Biochar products.

Trap door opening - full range. Rotation – forward.



SHORT AGITATOR

Long agitator - compost, dry materials, wet materials, for greater agitator power

Trap door opening - 3/4 to wide open. Rotation - forward or reverse depending on specific product.

LONG AGITATOR



<u>Corkscrew agitator</u> - dry sand, screened crumbly compost, dry pulverized dirt, powder materials, Biochar products and granular products.

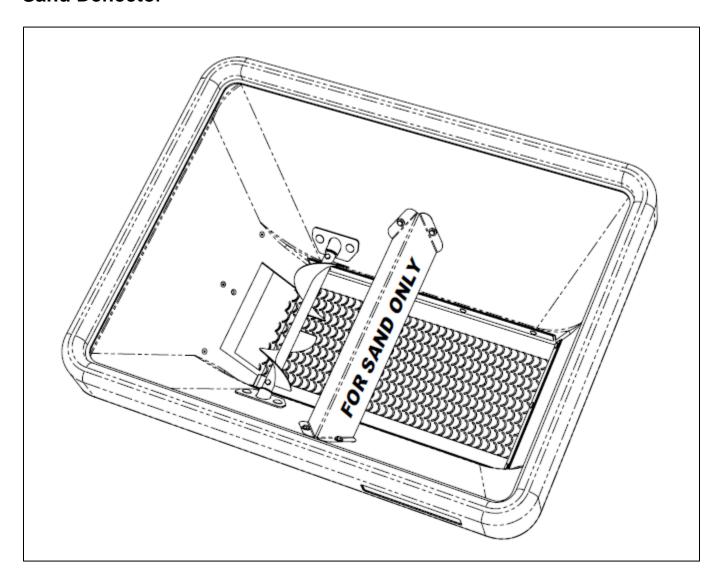
Trap door opening - 1/2 to wide open.



CORKSCREW AGITATOR



Sand Deflector





Assembly Steps

Assembly Steps ECO150&250

Step #1: Install pre-assembled steering column assembly (01) on the frame, put the 3/8-16 x 1" lg bolts and nuts (13x) (02) and the swivel wheels and tighten the 4 pieces together.

Note: Make sure that the ajustable clutch rod (03) is inserted in the frame correctly in order to attach to the clutch assembly. Note: FOR ECO-150 THERE IS ONLY ONE SWIVEL WHEEL THAT IS INSTALLED LINED UP UNDER THE STEERING COLUMN. THE BOLTS ARE 3/8-16 X 1 1/4" LG AND NUTS (5x)

Step #2: Tighten the ajustable clutch rod (03) to the clutch assembly using the 3/8"-16 x 1.5" g. nut and bolt (1x) (04).

Note: The rod is pre-set to approximate measurement.

(3)

(6)

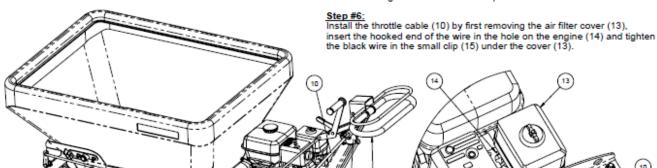
(2)

Install the pivot rod for feed trap opening (05) using spacers in the steering column hole and in the feed trap-support lever (06). Attach it to the frame using Hex 1/4"-20 x 3/4" Ig bolts and nuts (2x) (07). Note: Make sure to properly aligned.

Install rod (01) for feeding trap mechanism into the feed trap handle (12) and in the lever opening trap (11) for feeding trap opening hole. Install using 3/32" cutter pins and washers Ø 3/8"(2x).

Install the adjustable feed trap rod (09), insert the long end in the lever opening trap (05) and the short end in the lever opening (11) in the front of the machine.

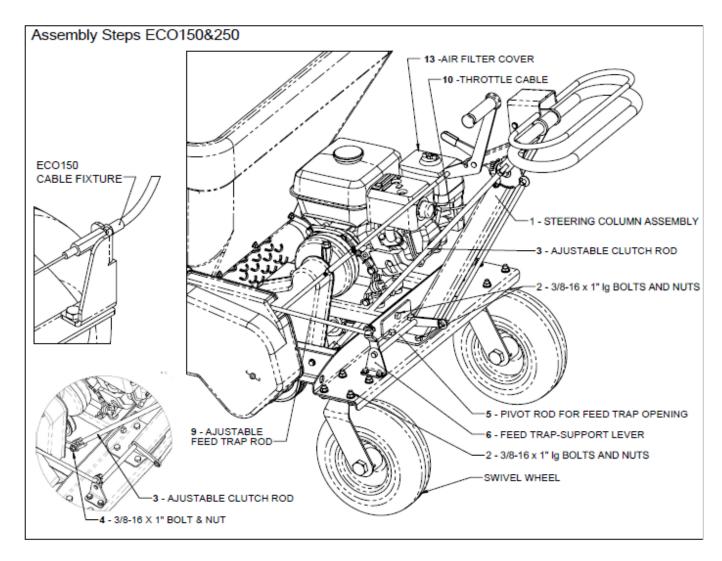
Note: The length of the rod has been pre-set.



(12)

CLIP 15 UNDER THE COVER #13







Spare Parts

All spare parts from the list below can be ordered separately from Ecolawn.

Part #	Description	Part #	Description
C-0004	DIFFERENTIAL	D-0125	CONVEYOR SCRAPER - UPPER
C-0005	DOUBLE GROOVE V-BELT PULLEY 2MA53-3/4	D-0162	CONVEYOR SCRAPER - LOWER
C-0006	DOUBLE GROOVE V-BELT PULLEY (TO MOTOR) 2MA 58-3/4	D-0177	FEED TRAP ECO-250
C-0007	DOUBLE GROOVE V-BELT PULLEY(TO CONVOYER) 2MA 25 3/4	Q-0261	ELECTRIC CABLE 37" 14/41 600V 1015/1230
C-0011	MOTOR BELT GUARD (ALL MODEL)	Q-0268	SWITCH (ELECTRIC) FOR HONDA MOTOR
C-0016	MOTOR CABLE & CONTROLLER	S-0007	ACCELERATION HANDLE
C-0017	HONDA MOTOR GX160 HH	S-0008	LEFT TREADED LOWER CLUTCH ROD ATTACHMENT
C-0018	MUFFLER HONDA / DEFLECTOR COMP.	S-0020	TENSIONER ACCELERATOR
C-0026	SINGLE GROOVE V-BELT PULLEY MA25-3/4	S-0027	CONVEYOR CLUTCH ARM
C-0027	SINGLE GROOVE V-BELT PULLEY MA30-3/4	S-0031	FEED TRAP MECHANISM-ECO 250
C-0028	PULLEY MA 43 3/4 - I.D. 3/4 "	S-0161	CONVEYOR ACTIVATION HANDLE
C-0029	SPROCKET 48 TEETH	S-0167	SMOOTH ROLLER DRIVEN
C-0030	SPROCKET 14 TEETH	S-0202	FRAME ECO-250
C-0035	WHEEL (TURF SAVER TIRE AND RIM) 16 X 7.50	S-0253	FEED TRAP-SUPPORT-ECO 250
C-0040	GEARBOX PGM 1000-026D	S-0256	WELDED HANDLEBAR-ECO 250
C-0041	SINGLE GROOVE V-BELT PULLEY MA25 - 7/8	S-0260	LEVER OPENING TRAP - ECO 250
C-0044	NOTCHED V-BELT A37 (TO MOTOR)	S-0279	LEVER OPENING ECO-250
C-0045	V-BELT-ECO 250 -A81	U-0034	TENSIONER WHEEL
C-0046	NOTCHED V-BELT A28 (TO CONVEYOR)	U-0038	ACCELERATION HANDLE
C-0052	CHAIN 60"	U-0044	LONG ROD, LEFT THREADED
C-0053	SWIVEL WHEEL	U-0047	FEED TRAP GUIDE
C-0152	CONVEYOR (CLUTCH) BELT GUARD (ECO250)	U-0052	CLUTCH HANDLE (METAL)
C-0153	PULLEYS AND BELTS GUARD	U-0096	NON-SLOTTED AGITATOR SHAFT
C-0159	HOPPER ECO	U-0066	FEED TRAP ROD - ECO 250
C-0160	V-BELT A55 (SMOOTH)	U-0162	DRIVE SHAFT 150&250 / DOUBLE PULLEY
D-0017	FEED TRAP HANDLE	X-0154	HOPPER STICKER ECO 150
D-0111	DEFLECTOR FOR BELT	X-0254	HOPPER STICKER ECO 250
D-0113	CENTRAL WEIGHT DEFLECTOR	X-0254	HOPPER STICKER ECO 250