SRM/GT/PAS/SB/PE
SAFETY MANUAL

DANGER!

Misuse may result in serious or fatal injuries. You must read, understand, and follow these safety instructions, and the instructions in the Operator's Manual, before operating a Model GT Grass Trimmer, SRM Trimmer-Brushcutter, PAS Pro-Attachment Series Powerhead, SB Split-Boom Trimmer-Brushcutter, or PE Power Edger.

If you operate a model SB Split-Boom or PAS Pro Attachment Series multi-attachment unit, you must also read, understand, and follow the instructions in your PAS Attachment Operator's Manual.

DANGER!

Metal blades are very sharp and can cause severe injuries, even if engine is off and blades are not moving. Avoid contact with blades. Wear gloves to protect hands.

INTRODUCTION

WARNING

This manual describes how to protect yourself and others from hazards related to operation of a Model GT Grass Trimmer, Model SRM Trimmer-Brushcutter, Model PAS Pro-Attachment Series unit with attachment, Model SB Split-Boom unit with attachment, and Model PE Power Edger.

Before assembling, fueling, operating, or servicing your unit, you must read and understand this Safety Manual, your unit's Operator's Manual, and the Operator's Manual or Installation Instructions for any attachment or accessory you may be using.

You must understand all safety symbols and warning labels, and obey the safety precautions provided by these important safety reminders.

You must also be alert at all times, and be physically capable of handling and controlling a grass trimmer, trimmer-brushcutter, PAS attachment, or Power Edger in a variety of applications. If you are unable to handle the equipment safely, or if you feel that the task you wish to perform could put you, your property, or others at risk, please call a professional landscape maintenance company to handle the job.

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SAFETY SYMBOLS AND WARNINGS

These important safety symbols and warnings are used throughout this manual, and may also appear in your Operator's, Attachment, or Installation Instruction Manual. These symbols and warnings are provided to help make you aware of potential hazards, and the precautions you must take to protect yourself from injury. You must read and understand this information, and obey the instructions. These symbols may also appear on safety labels as a visual reminder to follow these important precautions whenever you are transporting, fueling, operating, servicing, handling, or storing your unit.

Circle/Slash Prohibition Symbol

This symbol means that the specific action shown is prohibited. Ignoring these prohibitions can result in serious or fatal injury.

Safety Alert Symbol

The Safety Alert symbol is used to alert you to potential personal injury hazards. To avoid serious or fatal injuries, obey all safety messages that follow this symbol.

Safety Alert Symbol/DANGER Signal Word

The safety alert symbol appearing with the word "Danger!" calls attention to a hazard which will result in death or serious injury if not avoided.

DANGER

Safety Alert Symbol/WARNING Signal Word

The safety alert symbol appearing with the word "Warning!" calls attention to a hazard which could result in death or serious injury if not avoided.

WARNING

Safety Alert Symbol/CAUTION Signal Word

The safety alert symbol appearing with the word "Caution!" calls attention to a hazard which could result in minor or moderate injury if not avoided.

CAUTION

NOTICE signal word only. (No safety alert symbol)

The word "NOTICE" calls attention to a situation which may result in property or equipment damage if the information that is provided is not followed .

NOTICE

SAFETY SYMBOLS AND WARNINGS

Read Operator's and Safety Manuals

Read manuals carefully, and follow rules for safe operation. Failure to do so could result in serious or fatal injury.

Wear Head, Eye, and Hearing Protection

Wear head, hearing, and eye protection that meet ANSI requirements.

Wear Hand Protection

Wear heavy duty work gloves to protect hands

Sharp Blades Alert

Contact with blades can result in serious cuts and amputation

Carbon Monoxide Hazard Alert

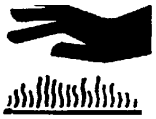
Do not operate indoors. Breathing carbon monoxide can cause serious or fatal injuries.

Explosion Hazard Alert

Gasoline vapor can explode if exposed to sparks or open flame.

Burn Hazard Alert

Contact with hot surfaces can cause serious burns.



Fire Hazard Alert

Risk of fire from gasoline spills or leaks. Wipe up spills immediately and dispose of wipes in an approved fire-safe container.

Shock Hazard Alert

Unit not insulated against electrical current. Avoid power lines.

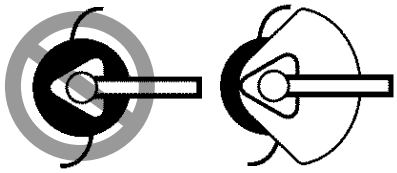
SAFETY SYMBOLS AND WARNINGS

Slip Hazard Alert

Wear slip-resistant footwear to reduce risk of falls.

Operate Only With Debris Shield In Place

Do not operate without correct debris shield.

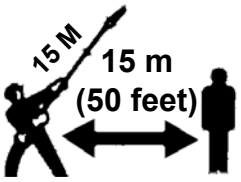


Stop Symbol

Indicates the “Stop” position for the engine ignition switch (Stop Switch).

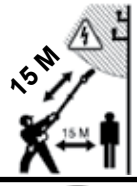
Keep Bystanders 15 m (50 feet) Feet Away

Keep bystanders at least 15 m (50 feet) away when operating unit.



Do Not Operate Near Electrical Lines

Do not operate closer than 15 m (50 ft.) to electrical lines.



Flame Prohibition

Do not allow flames or sparks near fuel or fuel vapors.

No Smoking Prohibition

Do not smoke near fuel.

Do Not Operate Equipment While Impaired

Do not operate equipment while under the influence of alcohol, medication, or any other substance that can impair judgment, reflexes, vision, or coordination. Operating a unit while impaired can result in serious injury to operator and bystanders, or cause damage to property or equipment.

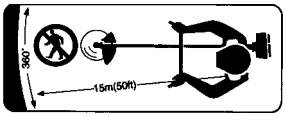
SAFETY SYMBOLS AND WARNINGS

Flying Debris Hazard

Work attachments can throw debris. Flying debris can cause serious injury.

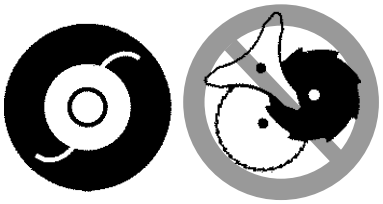
Danger Zone Alert

Maintain 15 m (50 feet) radius danger zone around trimmer - brushcutter.



Metal Blade Prohibition (Use Nylon Line Head Only)

Metal blades cannot be used on unit. Use nylon line head only.



Edger Debris Alert

Edger debris can affect stable footing. Use extreme care when walking in edging area.

Edger Blade Alert

Edger Blade is partially exposed during operation. Keep clear of blade.

Prohibited Clothing

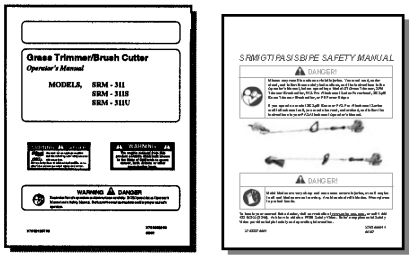
Wear protective clothing and shoes. Loose clothing, dangling accessories, or open footwear increases risk of serious injury.

Finger Sever Hazard

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings.

OPERATOR SAFETY

DANGER



GT Grass trimmers and SRM trimmer-brush cutters are powerful, professional-grade tools designed for applications such as trimming grass and light weeds, and when properly configured (SRM/PAS/SB /straight shaft only), cutting brush, woody growth, and small saplings and trees.

PAS Pro Attachment Series and SB units can be equipped with a wide variety of lawn and landscaping attachments for tasks ranging from edging to pruning, allowing operators to perform an entire range of applications with just one powerhead.

PE Power Edgers provide precise edging action for maintaining lawn borders in residential and commercial landscaping. Edgers can also be equipped with an attachment that quickly cleans out cracks and joints in sidewalks, driveways, paved areas, and other hard surfaces.

When used properly, these tools save time, reduce effort, and make difficult landscaping tasks easy. If handled carelessly or used improperly, they can cause severe injury or death.

Before using this equipment, you must:

- Read and understand this Safety Manual
- Read and understand the Operator's Manual provided with your unit.
- Read and understand the Manual provided with any blade, attachment, or accessory that will be used.
- Wear appropriate personal protective equipment and clothing
- Make sure all others who use the equipment have read and understand the manuals before fueling or operating the tool.
- Clear the work area of bystanders and pets.
- Clear the work area of debris and other work hazards
- Make sure you have safe, unobstructed footing
- Make sure the area to be cut is free of obstacles and hidden hazards
- Safely prepare the fuel/oil mix
- Fuel your unit safely
- Store the fuel and 2-stroke oil containers safely.

OPERATOR SAFETY

PHYSICAL CONDITION

WARNING

Operating this unit while you are impaired can result in serious personal injury or death to yourself and others. Never operate the unit if you are fatigued, or are under the influence of alcohol, medication, or any other substances that can affect your judgment, reflexes, vision, or coordination. You must be mentally alert and physically able to operate a trimmer, brushcutter, edger, or PAS attachment safely. If you are impaired in any way, or are physically unable to safely operate and control the unit, do not fuel, start, or attempt to use the unit.

PERSONAL PROTECTIVE EQUIPMENT

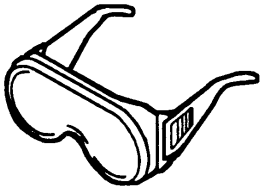
WARNING

Operating a trimmer, brushcutter, or other powered cutting or work attachment may expose you to sharp blades, powerful cutting action, spinning nylon cutting line, flying debris, and other work area hazards. These hazards can cause serious injury to you and others if you do not take the precautions necessary for safe operation.

To help protect against risk of injury caused by these hazards, you must wear appropriate personal protective equipment:

Eye and Face Protection

Wear eye protection that meets current ANSI Z87.1 requirements. For additional safety, a full-face shield may be worn over safety glasses or goggles to provide protection from sharp branches or flying debris.



Hearing/Ear Protection

ECHO Inc. highly recommends wearing ANSI recognized hearing protection whenever you are operating the unit. Hearing protection prevents hearing loss caused by frequent or prolonged exposure to engine noise. ECHO Inc. recommends ear plugs, or for constant heavy-duty use, wear earmuff-style hearing protection.

Combination Face/Hearing Protection

For complete face/hearing protection, the use of combination ear muffs/face shield provides face and hearing protection all in one unit.

ALWAYS wear safety glasses or goggles under the face shield, and wear head protection when cutting overhead using a PAS or SB unit with Power Pruner or Hedge Clipper Attachments.

PROTECTIVE CLOTHING

Gloves

WARNING

Sharp Blades/Powerful Cutting Action. Contact with sharp edges of moving blades and attachments will cause severe injury or amputation. Keep hands, fingers, and all other body parts away. Work gloves and other heavy work clothing do not protect against serious injury if contact is made with moving blades or attachments.

Wear sturdy work gloves to provide protection against cuts and scratches, and to help reduce the effects of vibration.

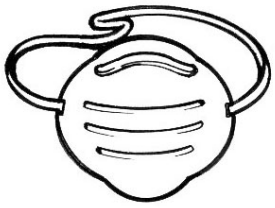
OPERATOR SAFETY

Leg Protection
Wear long pants to protect legs from cuts and scratches caused by flying debris.

Foot Protection
Wear sturdy shoes or work boots to provide foot protection. Steel-toe shoes or boots provide extra protection against dropped or falling objects. Make sure soles are non-slip for secure footing.

General Clothing Safety
Never wear ties, loose clothing, or clothing with strings, frills, or dangling straps. Keep clothing buttoned or zipped, and keep shirt tails tucked in. Never wear dangling or hanging jewelry such as earrings or necklaces, or any other items that could become entangled with branches or equipment, and be drawn into the moving parts of the engine.

Dust Protection
Operators who are sensitive to wood dust or other common airborne allergens may need to wear a dust mask to prevent inhaling these materials while operating unit. Dust masks can provide protection against sawdust, plant debris, and other plant matter such as pollen. Make sure the mask does not impair your vision, and replace the mask as needed to prevent air restrictions.



PROTECTION AGAINST COLD OR VIBRATION

CAUTION

Prolonged exposure to cold and/or vibration may result in injury. Read and follow all safety and operation instructions to minimize risk of injury. Failure to follow instructions may result in painful wrist/hand/arm injuries.

Wear sturdy work gloves to help reduce the effects of cold and vibration, and to help improve your grip.

Raynaud's Syndrome

A condition known as Raynaud's Syndrome can occur from exposure to cold and/or vibration. This condition affects the hands and arms, causing tingling, burning, numbness, and loss of color in the fingers. The amount of exposure needed to trigger this is unknown, and varies by individual.

To protect yourself from this condition, take the following precautions:

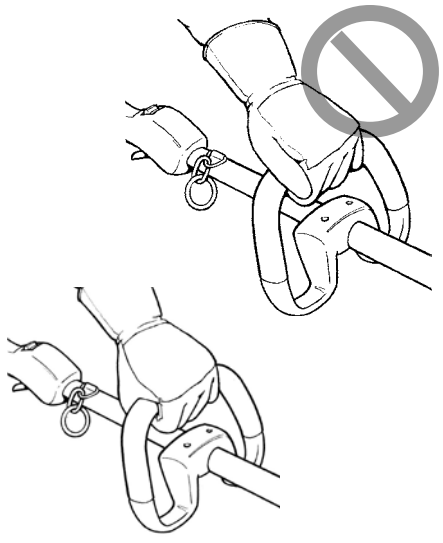
- Keep your body warm - pay particular attention to head and neck, hands and wrists, and feet and ankles.
- Avoid awkward grips on the unit that may cause stress. Maintain control, but do not hold the unit with an excessively tight grip.
- Take regular rest breaks.
- Exercise and stretch to strengthen muscles, and to maintain circulation. Keep exposure to vibration at a minimum.
- If you experience discomfort, redness, and/or swelling of the fingers, followed by whitening or loss of feeling, stop using the unit, and contact a doctor.

Repetitive Stress Injuries (RSI)

Overuse of the muscles and tendons of the fingers hands, arms, and shoulders may cause soreness, swelling, numbness, weakness, and pain in these areas. Repetitive hand/wrist movement can put you at high risk for developing a Repetitive Stress Injury (RSI), such as Carpel Tunnel Syndrome (CTS). Carpal Tunnel Syndrome occurs when swelling in the wrist puts pressure on a nerve, resulting in severe pain.

To protect yourself from these conditions, take the following precautions:

- Avoid using your wrist in a bent or twisted position. Try to maintain a straight wrist position.
- Avoid using your thumb and index finger to grip things - use your whole hand.
- Take regular rest breaks.
- Exercise and stretch to strengthen muscles and maintain circulation.
- Keep exposure to vibration at a minimum.
- Reduce the speed and force of repetitive movements.
- If you experience tingling, numbness, or pain in the fingers, hands, wrists, or arms, stop using the unit immediately, and contact a doctor. Early diagnosis of RSI can help prevent permanent nerve and muscle damage.

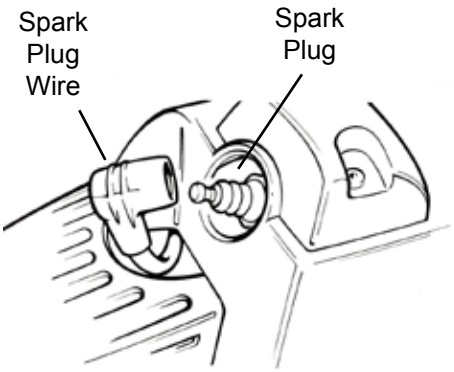


ASSEMBLY

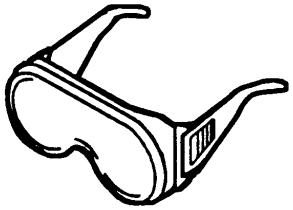
ASSEMBLY

WARNING

Move STOP switch to STOP position and disconnect spark plug lead at spark plug before assembling unit. Do not connect spark plug lead to spark plug until unit is properly assembled, checked, and ready for use.



ALWAYS wear eye protection that meets current ANSI Z87.1 requirements. Operators that wear prescription glasses must wear appropriate protective eyewear over glasses. For additional safety, a full-face shield may be worn over the safety eyewear to provide complete face protection.



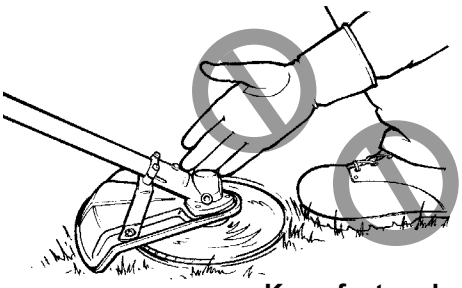
If parts are missing, or if you have a problem installing parts, contact your Dealer for assistance or call Consumer Product Support.

DANGER

Metal grass, weed, brush, and clearing blade edges are extremely sharp. Accidental hand or body contact with blade edges can result in severe cuts, even if the engine is off and blades are not moving. Always wear sturdy work gloves when handling blades. Do not allow blades to contact any part of your body. Work gloves do not provide protection from contact with moving blades. Always keeps hands and body away from moving blades.

NEVER fuel, start, or operate your unit unless it is fully assembled, all shields and required guards are in place, and the throttle lock-out lever and trigger are working properly.

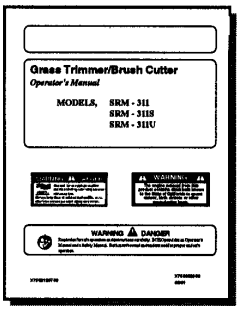
NEVER install any other type of blade, line head, cutting attachment, part, or accessory on your trimmer/brushcutter unless it is approved for use on your specific model. Parts and accessories that appear to fit properly may create a safety hazard when the unit is operated, and could result in serious injury to operator and bystanders.



Keep feet and hands away

ALWAYS use the correct tools for assembly. Using incorrect or improperly sized tools can result in a sudden slip and serious injuries.

ALWAYS follow the assembly instructions in order, as shown in the Operator's Manual. Improper assembly can result in sudden part failure, and serious injuries.



NEVER use parts that appear to be worn, damaged, improperly sized, or otherwise incompatible with mating parts. Contact your dealer or Consumer Support for assistance if parts do not fit properly.

NEVER modify parts or use parts from other pieces of equipment to assemble your unit. Use only parts that are designed to fit your model. Modifying a part to fit may weaken it, and cause premature failure. Parts from other models may not work properly, and can create unsafe operating conditions.

Wiring

Position wiring safely to prevent snagging, separation of connectors, or breakage during operation. Gather excess wire, and secure with wiring clamp if provided on unit, or tuck behind the air filter area. Do not place wiring directly against hot engine components.

Check wiring and connectors for nicks, cuts, exposed wire, or other damage, and repair or replace as needed. Exposed wire or connectors can cause shocks, sparks, and risk of fire or explosion, resulting in serious injury.

Check wire terminals for secure connections. Loose connections can cause erratic engine operation, or prevent Stop switch from stopping engine.

ASSEMBLY

Debris Shield

WARNING

Plastic Debris Shields are equipped with a sharp cut-off knife for cutting nylon trimmer line to length during operation. Use extreme care when assembling nylon line head to gear case to avoid accidental contact with cut-off knife. Wear work gloves when assembling nylon line head to gear case, and avoid contact with sharp cut-off knife edges.

SRM Debris Shield

Unit Configuration

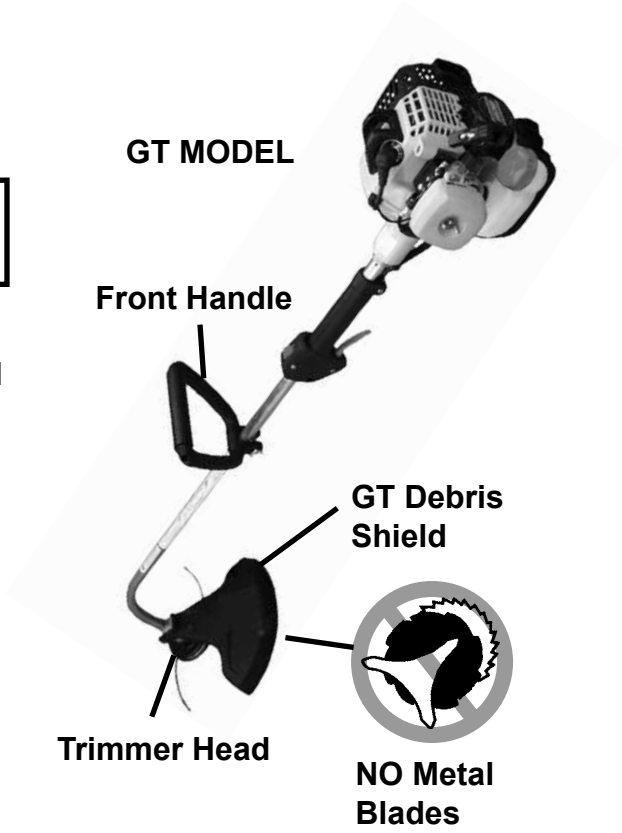
GT Models: If your Model GT curved shaft trimmer is not fully assembled, you must assemble the unit as instructed in the Operator's Manual provided with the unit. Before using the unit, make sure the plastic debris shield, trimmer head, and handle are properly attached, and are securely fastened.

If your GT curved shaft trimmer has been pre-assembled, you must make sure the plastic debris shield, handle, and trimmer head are properly installed and securely attached, as shown in the Operator's Manual provided with the unit.

GT Debris Shield

DANGER

NEVER install a metal blade on a model GT curved shaft trimmer. Use of any metal blade on a GT curved shaft trimmer can result in serious injury to operator and bystanders. Use only nylon line heads or GT series Maxi-Cut plastic weed trimmers approved for use on GT models. (See Set-up Guide page 15)

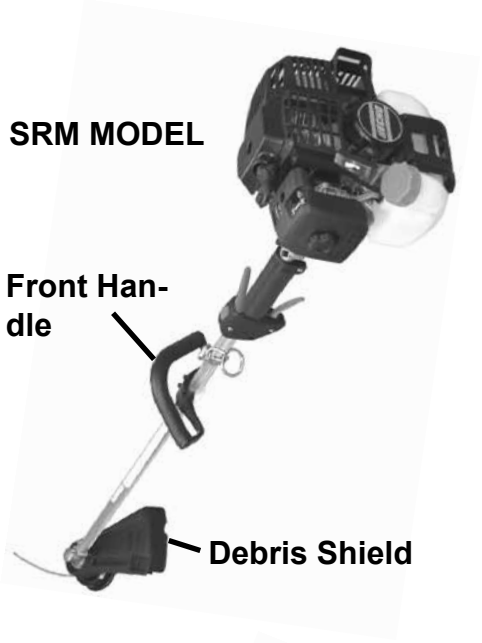


GT MAXI-CUT BLADE/NYLON LINE HEAD SET-UP GUIDE					
TO USE THESE CUTTING ATTACHMENTS* →		GT Series Maxi-Cut Grass/Weed Plastic Cutters	GT Dual Line ECHOmatic Line Head	GT Single Line ECHOmatic Line Head	2 Line GT Rapid Loader Line Head
You must use these parts!	Front Handle	Loop Handle (STD)			
	Debris Shield	Plastic Shield (STD)			
	Harness	Not Required			
	Mounting Hardware*	Flat Washer	Extra Hardware Not Required	Extra Hardware Not Required	Flat Washer
		3/8-24 R.H. Thread Hex Locknut			3/8-24 R.H. Thread Hex Locknut
Standard Cutting Line Diameter		N/A	.080 Diameter	.080 Diameter	.095 Diameter

* All required installation hardware provided with cutting attachment.

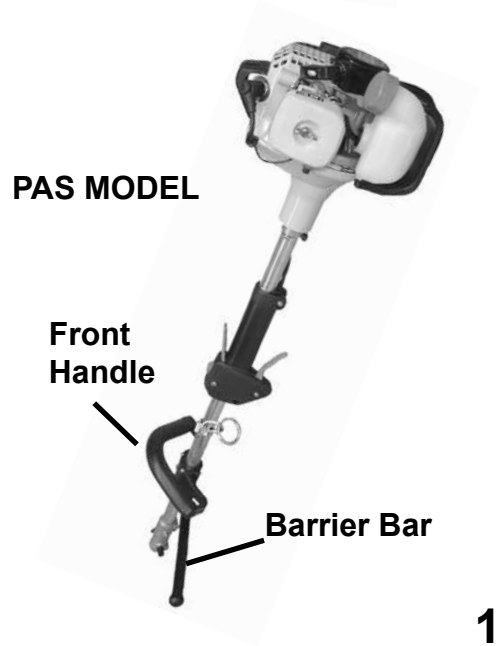
SRM Models: If your trimmer-brushcutter requires assembly before it can be used, you must make sure the unit is properly configured for the type of cutting attachment you will be using. Follow the instructions in the Operator's Manual provided with the unit. You must install the required cutting attachment, debris shield, handle, and any other protective devices needed, such as a harness loop and safety harness. See SRM/PAS/SB Set-Up Guide Page 17)

If your trimmer-brushcutter has been preassembled, you must make sure the unit is properly configured for the type of cutting you will be performing. If the unit is not properly configured, you must first remove the incorrect parts, and then install the correct parts, following the instructions in the Operator's Manual before using the trimmer-brushcutter,



PAS/SB Models

Pro Attachment Series (PAS) and Split-Boom (SB) models are for use only with PAS series attachments, and must not be used with any other type or brand of attachment. Select the desired PAS attachment, and assemble the attachment to the powerhead driveshaft using the coupler. Follow the safety and operating instructions in the Operator's Manual provided with the attachment, and General Safety Instructions in this Safety Manual.



ASSEMBLY

The Pro Attachment Series and Split-Boom models allow the use of a wide range of attachments to perform various lawn, garden, and landscaping tasks. These attachments have individual safety and operating rules which must be obeyed for safe operation. You must read and understand the safety and operating instructions for each attachment before using the unit. You must also review the general safety instructions for PAS Attachments.

If you change PAS attachments, you must also make sure your front handle is properly configured for the new attachment.

PAS/SB Front Handle Configuration

The required front handle configuration of your PAS/SB unit may change, depending on the type of PAS attachment being used:

- Use the barrier bar provided with the PAS power head when instructed in the PAS Attachment Operator's Manual.
- Remove the barrier bar when using an attachment that does not require a barrier. See the PAS/SB Attachments Barrier Bar Use table for barrier bar usage information.

BARRIER BAR USE - PAS/SB ATTACHMENTS			
PAS ATTACHMENT	**RECOMMENDED**	**OPTIONAL**	**NOT RECOMMENDED**
Shaft Hedge Clipper			**X**
Tiller-Cultivator	**X**		
Power Pruner			**X**
Standard Line Trimmer		**X**	
Pro Sweep	**X**		
Pro Thatch			**X[2]**
Articulating Hedge Clipper			**X**
Brushcutter[1]			**X[3]**
Rapid Loader Line Trimmer		**X**	
Pro Paddle	**X**		

1 - See SRM/PAS/SB Blade Set-up Guide on Page 17 for blade use requirements
2 - Use J-Handle provided with Pro-Thatch attachment as a barrier
3 - Brushcutter requires U-Handle & Harness

SRM/PAS/SB Blade Configuration

If you change the cutting attachment on your SRM, PAS, or SB unit from nylon line head to a blade, you must also install all of the parts required for blade operation. These parts vary by type of blade being used, and may include replacing the front handle with a U-Handle (See the SRM/PAS/SB Set-Up Guide, Page 17)

U-handle/Blade Kit

DANGER

A trimmer-brushcutter unit equipped with a metal blade can cause serious injuries if handled improperly. **ALWAYS** use extreme care when carrying or handling the unit to avoid contact with the cutting edges of the blade. ECHO Inc. recommends using the optional plastic blade cover to protect yourself and others from accidental blade contact.

Circular Blade Cover

SRM/PAS/SB Blade Set-Up Guide

Use this configuration table as a guide for setting up your unit with a blade. See the assembly instructions in your Operator's Manual or Blade Conversion Kit for specific information.

SRM/PAS/SB BLADE SET-UP GUIDE*					
TO USE THESE BLADES →		Pro Maxi-Cut Grass/Weed Plastic Cutters	Rigid Plastic Tri-Cut Grass/Weed Blade	Metal Tri-Cut/8 Tooth Grass/Weed Blade	Metal 80T Brush Blade Metal 22T Clearing Saw Blade
You must install these parts! →	Handle	Loop Handle, w/or w/o Barrier Bar	Loop Handle w/Barrier Bar, or U-Handle	Loop Handle w/Barrier Bar, or U-Handle	U-Handle
	Debris Shield	Metal Shield	Metal Shield	Metal Shield	Metal Shield
	Harness	Shoulder Harness	Shoulder Harness	Shoulder Harness	Shoulder Harness****
	Blade Mounting Hardware	Upper Plate & Flat Washer	Upper Plate & Glide Cup	Upper/Lower Blade Plates**	Upper/Lower Blade Plates**
		Hex Nut	Hex Nut	Hex Nut	Hex Nut
		New Cotter Pin***	New Cotter Pin***	New Cotter Pin***	New Cotter Pin***

* WARNING! DO NOT INSTALL BLADES ON GT (CURVED SHAFT) MODEL TRIMMERS

** Arbor diameter of Upper Blade Plate must match arbor diameter of metal blades.

*** New cotter pin required each time blade is installed.

**** Brushcutters over 16.5 lbs (7.5 kg) dry weight (weight w/o fuel) require a double shoulder harness

ASSEMBLY

PE Models

DANGER

Modification, improper assembly, or use of unapproved blades or attachments, can result in serious injury, engine failure, and voiding of warranty. Use only blades and attachments approved for use on PE Series power edger models.

Keep Hands/Feet Away From Edger Blade

Assemble unit only as instructed in Operator's Manual, using parts provided with unit.

- NEVER modify edger or install blades or attachments not approved by for use on model PE power edgers.
- NEVER remove debris shield or deflector flap.
- NEVER install grass, weed, clearing, brushcutter, or any other type of circular metal saw blades or cutting attachment on an edger.
- ALWAYS use a new split pin each time blade is installed or replaced.
- ALWAYS remember to remove locking bar, T-wrench, and any other tools used to assemble unit or tighten hardware.
- ALWAYS store assembly tools safely away from the work area.

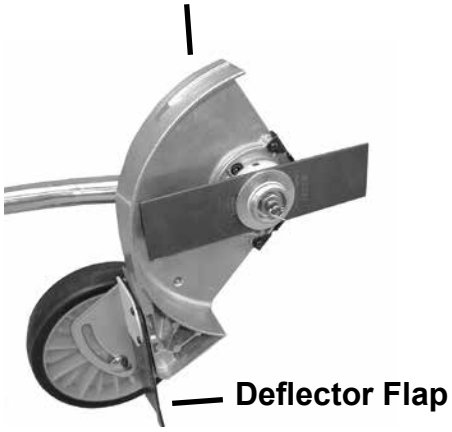
PE POWER EDGER

DANGER

Improper use of any trimmer, brushcutter, or PAS/SB unit and attachment or Power Edger, can cause serious or fatal injury. Moving edger blades and attachments can cut through work gloves, protective clothing, and footwear, and cause serious injuries. Keep hands, feet, and all other body parts away from spinning blades or attachments.

You must read, understand, and obey all safety and operating instructions in this Safety Manual, your unit's Operator's Manual, and in the Operator's Manual or Installation Instructions provided with any attachment, accessory, or parts kit that will be used.

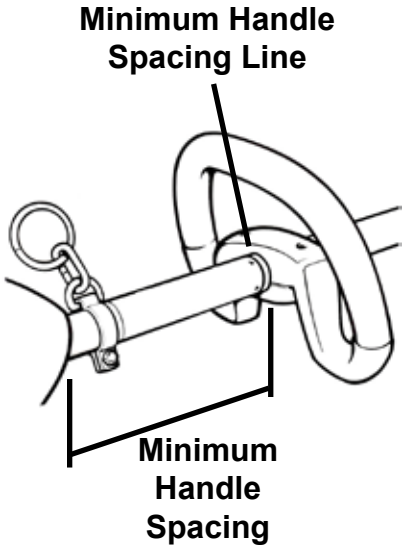
PE Debris Shield



Deflector Flap

All Front Loop Handle Models

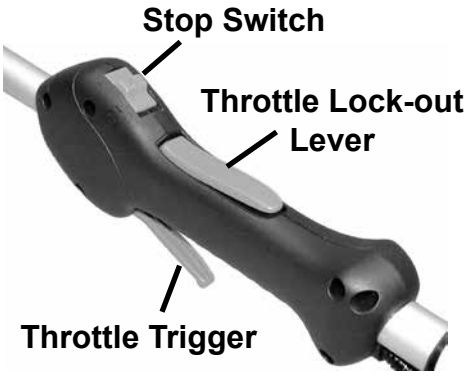
Make sure the front loop handle is positioned beyond the minimum handle spacing line, as shown on the handle spacing decal on the drive shaft housing. The minimum handle spacing line indicates the minimum distance between the rear handle and front handle, and helps ensure the operator's hands are far enough apart to maintain good control of the unit.



Final Assembly Check List

After assembly, check your unit to make sure guards, shields, protective devices, and all other parts are properly and securely assembled and working correctly. See the Operator's Manual for assembly details and part locations for your unit.

- Make sure all required hardware has been used and is properly tightened.
- Make sure throttle lock-out lever resets when released.
- Make sure throttle trigger does not operate unless throttle lockout lever is depressed.
- Make sure throttle trigger returns to normal position when released.
- Make sure stop switch operates properly, moving feely between STOP and run positions.
- Move STOP switch to stop position.
- Connect spark plug lead.



NEVER fuel, start, or operate your unit unless it is fully assembled, all shields and required guards are in place, and the throttle lock-out lever and trigger are working properly.

If parts are damaged, missing, or do not operate properly, or if you have a problem assembling your unit, contact your Dealer for assistance or call Consumer Product Support.

FUELING

FUELING

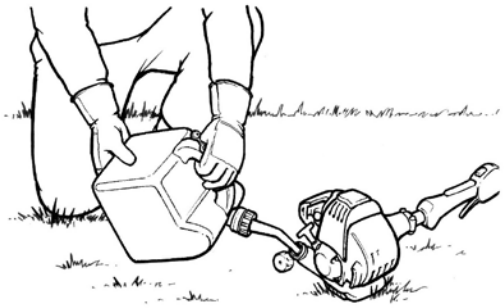
DANGER

Explosion/Fire/Burn Hazard. Gasoline is extremely flammable. Vapors are explosive. Keep at least 50 feet (15 m) away from heat, sparks, open flame, smoking materials, static electricity, and all other sources of ignition when fueling unit.

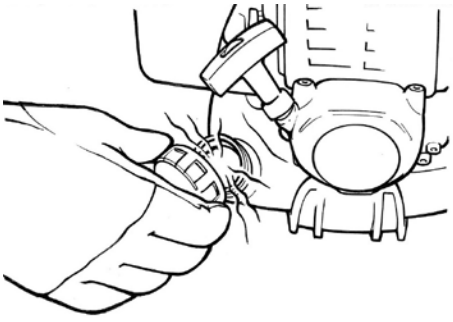
Gasoline vapor is heavier than air, and can travel along the ground to nearby sources of ignition such as electrical motors, pilot lights, and hot or running engines. Vapors ignited by an ignition source can flash back to the fuel container, resulting in an explosion, fire, serious or fatal injuries, and extensive property damage.

Follow these important safety precautions to minimize risk of explosion or fire:

- **ALWAYS** use an approved, "no-spill" type fuel container with tight-fitting caps.
- **ALWAYS** follow posted safety instructions for filling fuel containers at filling stations.
- **ALWAYS** place container to be filled with gasoline on the ground to prevent static build-up during filling.
- **ALWAYS** keep the metal filling pump nozzle in contact with the fuel container while dispensing fuel to prevent buildup and discharge of static electricity.
- **NEVER** fill fuel container on SUV/truck bed or in trunk of car.
- **NEVER** smoke near fuel.
- **NEVER** allow flames or sparks near fuel.
- **ALWAYS** loosen fuel caps slowly to allow pressure in tanks and containers to escape
- **ALWAYS** use extreme care when mixing, storing, or handling fuel.
- **NEVER** remove tank cap or refuel a unit while the engine is hot or running

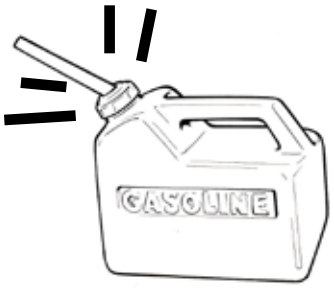


Fill Fuel Outdoors

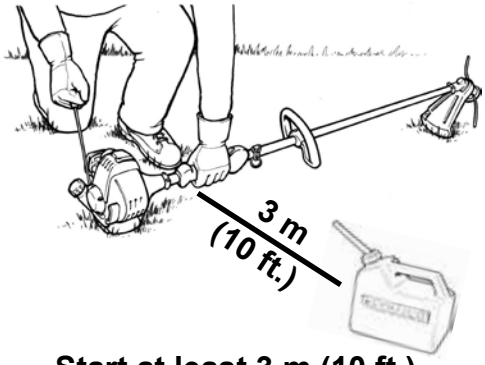


Open Fuel Cap Slowly

- **NEVER** fill fuel tanks indoors - **ALWAYS** fill fuel tanks outdoors over open ground.
- **DO NOT** overfill fuel tank - **ALWAYS** allow room in tank for expansion. Fill tank no more than 95 percent full, or to “Safe Fill Line” if marked on container.
- **ALWAYS** wipe up spills immediately, and dispose of fuel soaked wipes safely. Use a fireproof container designed for safe disposal.
- **IMMEDIATELY** change clothes if fuel spills on clothing. Wet clothes down with water first to minimize fire risk.
- **ALWAYS** tighten fuel tank cap securely - check cap for tightness.
- **ALWAYS** close fuel container immediately after refueling.
- **ALWAYS** check fuel system for leaks before using unit - **NEVER** start or operate a unit with leaks.
- **ALWAYS** move at least 3 m (10 ft.) away from refueling location before starting engine.
- **STOP USING UNIT IMMEDIATELY** and shut engine ignition off if you smell the strong odor of gasoline. Set unit down in a safe location, and allow to cool before checking for leaks.
- **ALWAYS** store fuel containers in a well ventilated, unoccupied building, away from heat, sparks, open flames, and other sources of ignition.



Tighten cap securely



Start at least 3 m (10 ft.) from fueling area.

Fuel Mix

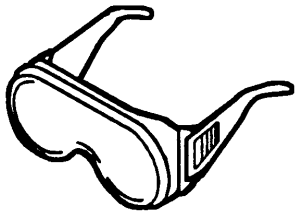
WARNING

2-Stroke engine oil contains petroleum distillates and other additives that may be harmful if swallowed. Heated oil can release vapors that can cause flash fire, or ignite with explosive force. Read and follow the oil manufacturer’s instructions, and observe all safety warnings and precautions for handling flammable liquids. For more detailed safety and first aid information, visit www.echo-usa.com for a copy of the Material Safety Data Sheet.

2-Stroke Engine Oil

FUELING

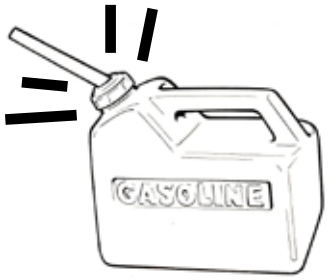
- **KEEP OUT OF REACH OF CHILDREN.**
- If swallowed, do not induce vomiting. **CALL PHYSICIAN OR A POISON CONTROL CENTER IMMEDIATELY.**
- **WEAR SAFETY GLASSES** when mixing or handling.
- **AVOID** repeated or prolonged skin contact.
- **AVOID** inhaling oil mists or vapors.
- **ALWAYS** wipe up spills promptly - spills may create a slip hazard if not attended to
- **NEVER** store oil in open or unmarked containers.



Wear Safety Glasses when mixing or handling fuel

Also, follow these important safe-handling precautions to minimize risk of explosion or fire when preparing fuel/oil mix:

- **ALWAYS** prepare fuel/oil mix in an approved fuel container
- **ALWAYS** follow mixing instructions in Operator's Manuals.
- **ALWAYS** make sure fuel container caps are tightly secured before shaking container to mix fuel and oil.
- **ALWAYS** store fuel containers in a safe location, with caps and vents sealed tightly.



Tighten cap before shaking container

DANGER

Alternative fuels, such as E-20 (20% ethanol), E-85 (85% ethanol) or any fuels not meeting requirements are **NOT** approved for use in 2-stroke gasoline engines. Use of alternative fuels may cause performance problems, loss of power, overheating, fuel vapor lock, and unintended machine operation, including, but not limited to, improper clutch engagement. Alternative fuels may also cause premature deterioration of fuel lines, gaskets, carburetors and other engine components.

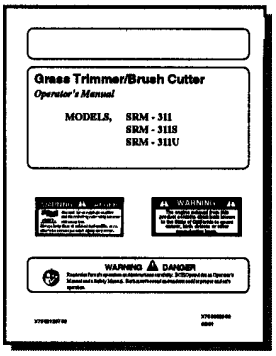
NEVER use raw (unmixed) fuel, or any high-ethanol fuel (ethanol content greater than 10%) such as E20 -E85, in a two-stroke engine.

Fuel containers filled with 2-stroke engine fuel/oil mix should be identified as containing fuel/oil mix, and should be stored separately to prevent using raw or high ethanol gasoline in a two-stroke engine.

STARTING

DANGER

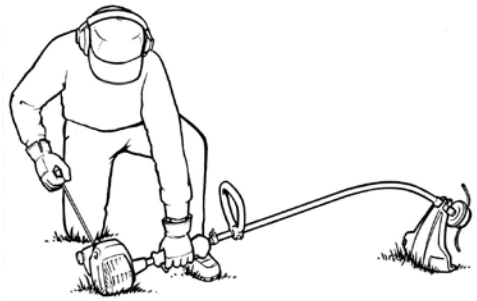
The Operator's Manual for your unit has specific starting instructions for your model and type of engine. For your safety and ease of starting, always follow these starting instructions, and obey the safety rules provided.



The cutting head/work attachment on units that require starting at wide-open (full) throttle (throttle trigger fully depressed) will start moving immediately when the engine starts.

To avoid loss of control and serious injury:

- Stabilize unit on ground before pulling starter handle.
- Stay clear of the cutting head/work attachment.
- Keep the cutting head/work attachment off the ground and clear of objects that could be struck or become entangled.
- Release the throttle trigger immediately when engine starts.



Stabilize unit on ground

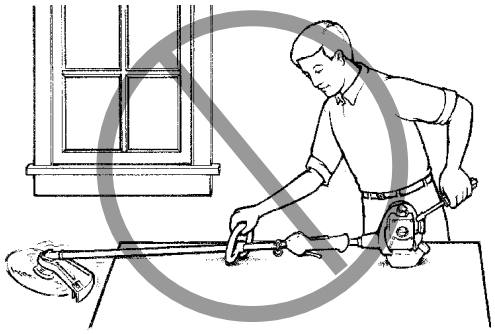
Before starting the unit, make sure you know the location of the unit's "STOP" switch, and know how to perform an emergency stop in case of a switch malfunction. (See "Stopping" on page 25.)

STARTING

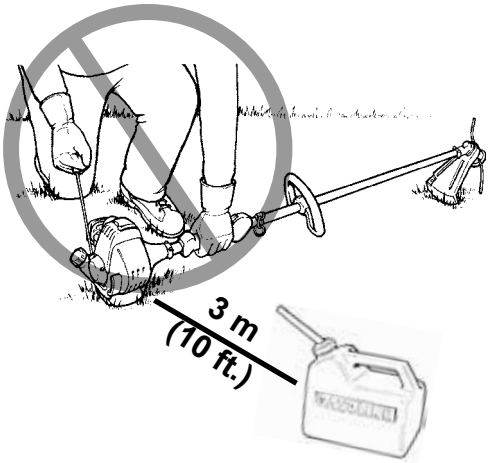
The cutting head/work attachment (nylon line head, blade, or PAS/SB attachment) must not move at idle, otherwise serious personal injury may result. Periodic carburetor adjustment may be necessary to assure the cutting head/PAS attachment does not move at idle. If the cutting head/work attachment moves at idle, re-adjust carburetor according to "Carburetor Adjustment" instructions and idle speed specifications provided in your Operator's Manual. See your dealer or contact Consumer Support for help if you have any questions.

Follow these important safety rules when starting your unit:

- **DO NOT** use unit if cutting head/work attachment moves while engine is idling (throttle trigger not depressed). Adjust idle speed as instructed in your unit's Operator's Manual before using unit.
- **NEVER** start or run your unit indoors or anywhere else where there is poor air circulation. Indoor operation produces dangerous levels of Carbon Monoxide, a colorless and odorless poisonous gas. Carbon Monoxide (CO) causes nausea and other flu-like symptoms if breathed. Prolonged exposure to CO may cause loss of consciousness, brain damage, or death.
- **NEVER** start a unit near a gasoline container or spilled gasoline.
- **ALWAYS** move at least 3 m (10 ft.) away from refueling location before starting engine.
- If a protective blade cover is used, **ALWAYS** remove blade cover before starting unit. Keep blade cover nearby, and place cover back on blade when unit is off and blade has stopped.
- **NEVER** start a PAS/HCA (extended shaft, articulating blade) unit while blade is in folded/locked position. Make cutting angle adjustment first.



Do not operate indoors



Do not start within 3 m (10 ft.) of fueling location

- **ALWAYS** start the unit with power head on the ground, with cutting head/work attachment off the ground and clear of debris and all obstructions.
- **NEVER** “drop start” the unit or attempt to start the unit while it is resting on blade tips.
- **ALWAYS** grip the unit firmly when starting to prevent loss of control when pulling starter handle.
- **ALWAYS** hold the unit securely on the right side of your body with both hands. Use left hand on the front handle and right hand on the rear handle, or use left and right handgrips on units equipped with U-Handle for metal blade use.
- **MAINTAIN** a secure, two-handed grip at all times while unit is in use.
- **ALWAYS** shut unit off immediately if it shakes or vibrates excessively when started. Tag unit, and have it checked by an authorized service center before placing back in use.

Never drop start unit

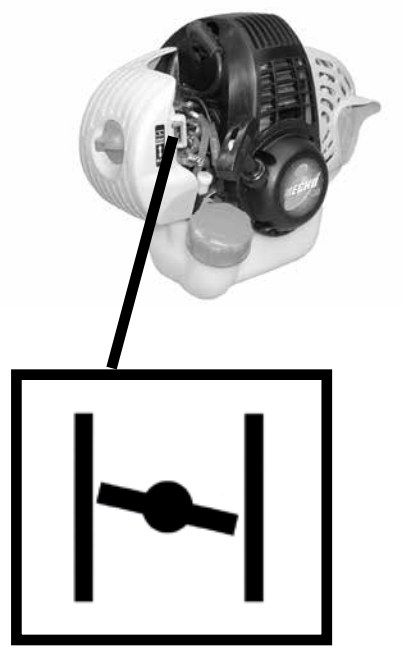
Never use one-handed

STOPPING

The “STOP” switch stops the unit by grounding the ignition and preventing the spark plug from discharging a spark. If the STOP switch malfunctions and does not stop the unit when required, use the choke to stall the engine to a stop, and have your dealer repair the switch before using the unit again.

Use this “Emergency" Stopping sequence only if the STOP switch malfunctions:

- Release trigger and allow engine to return to idle, and wait for cutting head/work attachment to stop.
- After the engine has returned to idle and cutting attachment has stopped, place the unit on a safe, flat surface, clear of obstructions.
- Keep one hand on the throttle control handle assembly to maintain control of the unit, and move the choke control lever to the closed, “COLD START” ( ) position to stall the engine.

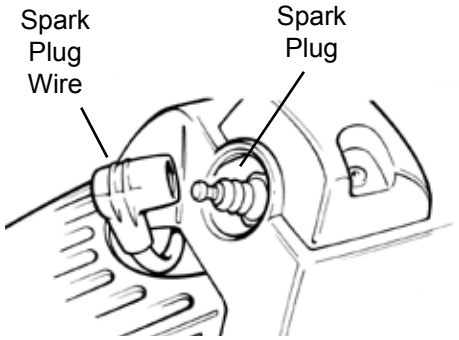


CHOKE CLOSED
(COLD START POSITION)

OPERATION

- Hold the unit with a secure, two-handed grip, and wait for the engine to stall to a complete stop.

- After the engine stops, disconnect the spark plug lead, and tag the unit to identify it as having a broken STOP switch.
- Do not restart the unit. Have the unit repaired before using it again.



OPERATION - GENERAL SAFETY

DANGER

Blade Hazard
Metal blades are extremely sharp, and have powerful cutting action. Contact with moving blades or cutting attachments will cause serious injury. Keep hands, feet, and all other body parts away from moving blades and cutting attachments at all times. Wear work gloves, safety glasses, hearing protection, and protective clothing.

Carbon Monoxide Hazard
Engine exhaust contains carbon monoxide, a poisonous gas. Breathing carbon monoxide can cause loss of consciousness, serious injury, or death. Start and operate outdoors only.

Spark Hazard
All equipment features spark-arresting mufflers as standard equipment. Spark arrestors prevent hot, glowing particles of carbon from being discharged from the muffler. Operation with a damaged, loose, or missing spark arrestor can result in fire.

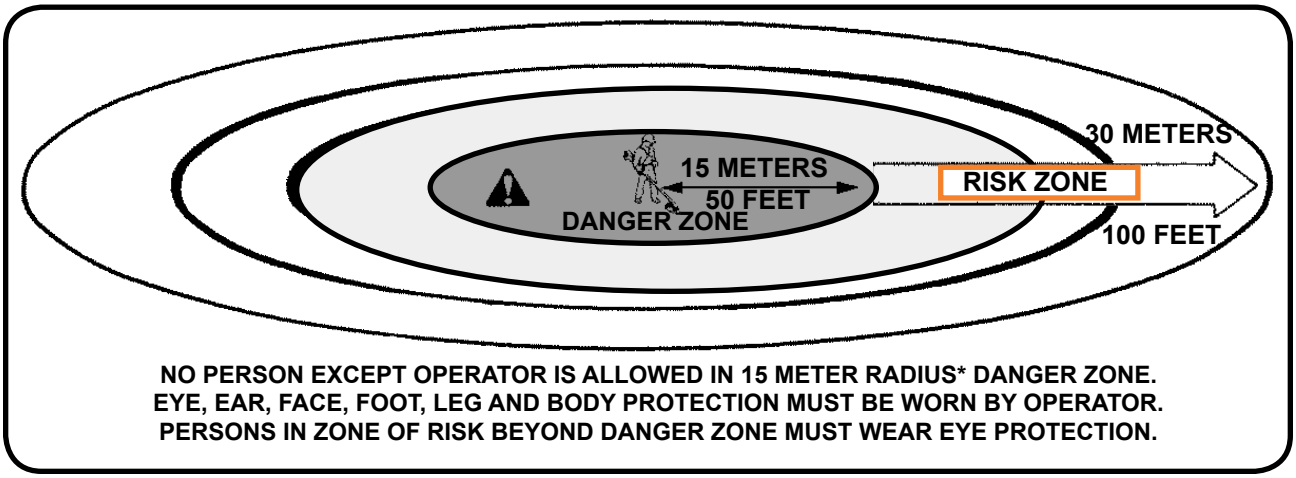
Hot Exhaust/Burn Hazard
The exhaust produced by gasoline-powered equipment is hot, and can cause burns or ignite nearby flammable materials. Never blow engine exhaust against your body or toward flammable materials. The muffler and surrounding area become extremely hot during use, and can cause serious burns if touched.

Finger Sever Hazard
Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.

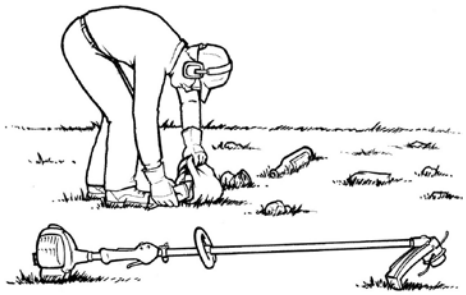
DANGER ZONE

Careless operation, misuse, improper configuration or assembly, or use of unapproved cutting heads and work attachments can result in serious or fatal injuries to operator and bystanders. Flying debris can cause serious eye injury, loss of sight, or property damage. You must read, understand, and follow all safety and operating instructions in this safety manual, in your unit's Operator's Manual, the Attachment Operator's Manual, and in the Installation Instructions for any kit or accessory being installed before using this equipment.

DANGER ZONE



- **ALWAYS** maintain a minimum safety zone of 50 feet (15 meters) from where you are working. Don't allow others to enter the safety zone unless you have shut the unit off and the cutting/work attachment has completely stopped moving.
- **ALWAYS** wear appropriate personal protective equipment to protect eyes, face, hearing, and hands.
- **ALWAYS** wear protective clothing to minimize risk of cuts, scrapes, and burns, and wear sturdy shoes or work boots with non-slip soles.
- **ALWAYS** safety-check equipment carefully before use.
- **NEVER** operate with missing, broken, or loose parts.
- **NEVER** operate a unit with a fuel leak of any kind.
- **ALWAYS** clear the intended cutting/work area of debris such as wire, stones, wood, cans, broken glass, and other objects which could be thrown, become entangled, or damage the cutting head/work attachment.
- **ALWAYS** check for hidden hazards such as sprinkler heads, metal stakes, or other similar objects that could break the cutting line or damage the cutting/work attachment. Stay clear of these hazards when operating your unit to minimize risk of injury from flying debris and loss of control, and to prevent equipment damage.
- **ALWAYS** check the ground for surface obstacles and other trip hazards, and be prepared for the terrain when moving around the work area.



Always clear debris before using unit

OPERATION

- **ALWAYS** use extra care to maintain footing around sloping, hilly, or slippery ground, and around uneven surfaces like steps, raised walkways, edging, and curbs.
- **ALWAYS** hold the unit firmly with two hands, with thumbs wrapped around the handles for a secure, comfortable grip. Left/front handle in left hand and right/rear handle in right hand.
- **ALWAYS** cut using a stable stance, with both feet on the ground.
- **NEVER** stand on a ladder or other temporary platform. You can fall or slip, and injure yourself or others.
- **NEVER** allow others near the cutting/work area, or to hold material you are cutting.
- **ALWAYS** keep both hands on the unit to maintain control.
- **ALWAYS** keep the muffler exhaust directed away from your body.
- **NEVER** touch the muffler, muffler cover, or surrounding area. Allow the unit to cool down before performing any maintenance in the muffler area.
- **NEVER** allow flammable debris such as dried leaves and sticks to build up in the exhaust area. Heat from operation can ignite these materials, and cause fire.
- **ALWAYS** keep fingers, hands, and all other body parts away from the cutting/work attachment and cutting/work area.
- **NEVER** allow anyone to reach into the cutting/work area for any reason while the unit is running.
- **ALWAYS** maintain a direct line of sight to the cutting/work attachment and the area where cutting/work is being performed. Be aware of what lies in the path of the cutting/work attachment at all times.
- **NEVER** work in the dark or when visibility of the work area is poor.
- **ALWAYS** be alert for changes in operation that could signal a problem - sudden vibration, unusual noise, the strong smell of fuel, or poor engine performance, all require immediate attention. Stop the unit and correct any problems before resuming cutting.
- **NEVER** carry unit around the work site while the blade or attachment is rotating. **ALWAYS** shut the engine off and let the blade or attachment stop before lifting the unit and moving to a new position.

Always use 2 hands to hold unit

Stop unit immediately if sudden vibration occurs

GT GRASS TRIMMER & SRM TRIMMER/BRUSHCUTTER OPERATION

GT/SRM/PAS Units - Using Nylon Line Heads

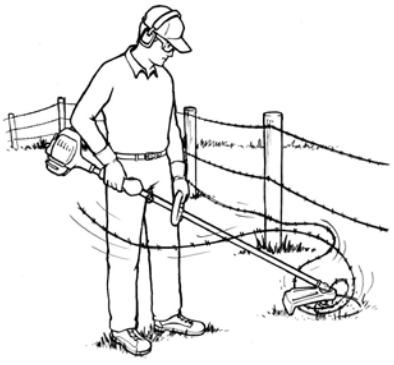
WARNING

Flying Debris

Line heads rotate at high speed - rotating nylon line can throw debris with sufficient force to cause injury. Keep bystanders and pets out of the “Danger Zone,” a 50 foot (15 meter) radius around the unit being operated.

- **ALWAYS** check area for hidden hazards before starting. Trimmer head or nylon line contact with hidden hazards (sprinkler heads, metal stakes, etc.) can result in loss of control of unit, nylon line breakage, and flying pieces of line or other ground debris.
- Make sure line head is securely attached to gear case drive shaft, and, if used to install line head, locking bar has been removed.
- Make sure cut-off knife is properly assembled to the debris shield, and nylon line head is secured.
- Make sure debris shield is aligned with drive shaft, and is properly secured to the gear case housing.
- Keep debris flow directed away from operator to minimize risk of being struck and injured by flying debris. Debris flows in direction of line head rotation at point of cutting contact. Change line head position as needed to change debris flow.
- Contact with spinning nylon line will cause serious injury. Keep hands, feet, and all other body parts away from line head.
- Keep cutting line away from wire fences to avoid entanglement with loose or broken wires. Entangled fence wire can spin around with cutting head at high speed, and cause serious injuries.
- **NEVER** operate trimmer with cutting head above knee height - operation with the cutting head well above ground level produces a higher debris flow, and can cause debris to strike you in the face.

Make sure line head is securely fastened



Keep cutting head away from wire fences

OPERATION

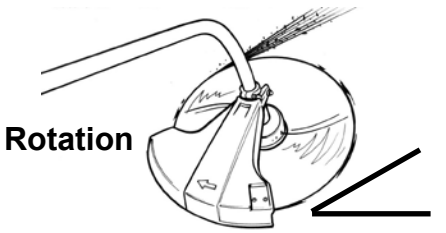
- **ALWAYS** follow instructions provided in Operator's Manual or with line head for loading or advancing nylon line.
- **ALWAYS** wear gloves when handling or reloading a line head that has been in use - the gear case and driveshaft get very hot and can cause burns if touched.

Applications
Nylon line heads may be used for trimming, scything, edging, and scalping of grass and light weeds.

Trimming - Feed the spinning line into the material to be cut. Tilt the line head to one side to direct cutting debris away from you:

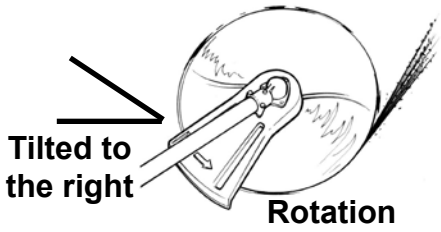
- **Model GT** (Curved shaft, clockwise line head rotation) - Tilt the cutting head down on the left side (air filter side) while cutting to direct cutting debris away from operator. Feed the line gradually into the material you wish to cut, avoiding contact with fences or other barriers.

GT Trimming



- **Model SRM/PAS/SB** (Straight shaft, counter-clockwise line head rotation) - Tilt the cutting head down on the right side (muffler side) while cutting to direct cutting debris away from operator. Feed the line gradually into the material you wish to cut, avoiding contact with fences or other barriers.

SRM Trimming



Scything - Swing the cutting head in a level arc, gradually feeding the line into the material being cut. Move forward with each arc to cut a swath. Width of cutting swath depends on arc. Use a larger arc for a wider swath, or a smaller arc for a narrow swath. Keep line head tilted to direct cutting debris forward or away from you.

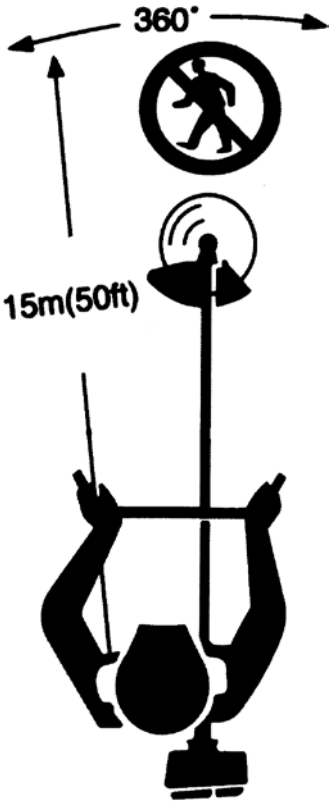
Scything

SRM/PAS Brushcutter Operation - Using Metal Grass/Weed, Brush, & Clearing Blades

DANGER

Sharp Blades/Powerful Cutting Action
Contact with moving blades can cause serious or fatal injury. Keep hands, feet, and all other body parts away from blades. Wear all required personal protective equipment. Misuse, improper assembly or care of equipment, or failure to follow all safety and operating instructions, can result in serious injuries to operator and bystanders.

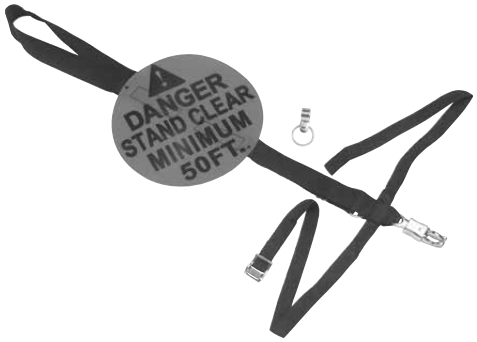
- Read blade selection, assembly, and sharpening instructions in operator's manual before using trimmer/brushcutter with metal blade.
- Read, understand, and obey all warnings and instructions in this safety manual before using trimmer/brushcutter with metal blade.
- Read, understand, and obey warnings and instructions on blade and blade packaging.
- Wear sturdy work gloves when handling, installing, or removing metal blades.
- Keep blades in protective packaging until ready to install. Store blades safely after removal to prevent injury from accidental contact.
- Use Blade Protectors to prevent injury and protect blade teeth during unit transport.



Observe 50' (15 m) Danger Zone
Spinning blades can throw cutting and ground debris with sufficient force to cause serious injury. Keep bystanders and pets out of the "Safety Zone," a 50 foot (15 meter) radius around the unit being operated.

- Be alert for bystanders, children, and pets entering Danger Zone during cutting. Stop unit and clear work area completely before resuming cutting.
- Moving about while cutting changes Danger Zone boundaries. Make sure all Danger Zone restrictions are followed at all times.

- Make sure the warning sign on the back of the shoulder harness is properly positioned for easy viewing by others.
- Wearing hearing protection and engine noise may prevent you from hearing others about to enter the Safety Zone. Perform regular visual safety checks of the area while cutting to help ensure a safe work area.



Standard Harness

Hidden Hazards

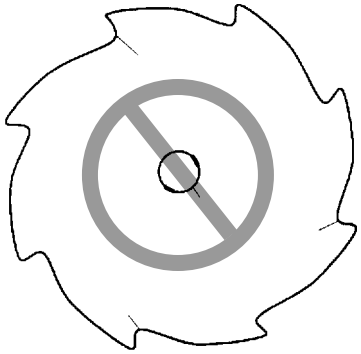
Blade contact with exposed or hidden hazards (rocks, metal posts, metal stakes, sprinkler heads, etc.) can result in sudden loss of control, and injury from blade contact or flying debris. Blade damage can result in breakage, and serious injury caused by flying blade fragments. Cutting with a dull or damaged blade increases risk of kick out and loss of control.

- **ALWAYS** check area for hidden hazards before starting. Remove hazard, or mark location of hazard to prevent striking it while using brushcutter.
- **ALWAYS** use extreme care when cutting near ground hazards and other obstacles.
- **ALWAYS** stop unit immediately and check for blade damage if an object is struck. Do not use blade if cracked, bent, chipped, or dulled by impact. Replace blade before resuming cutting.
- STOP engine immediately if sudden vibration occurs, and check blade for damage before using.

Heavy-Duty Harness

Unit Configuration - Blade Use

Blade use requires specific unit configuration. Blade must be matched to application requirements. See Blade Configuration Chart (Page 15).



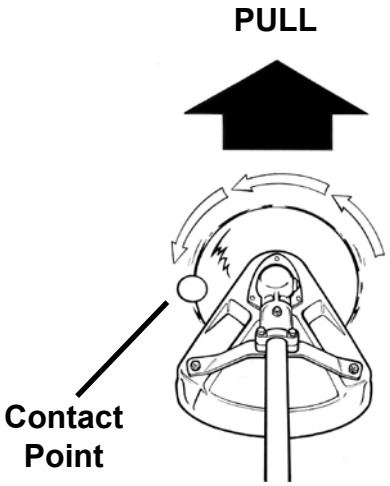
- **NEVER** use a metal blade with a plastic debris shield.
- **NEVER** use a metal blade on a Model GT (Curved Shaft) Grass Trimmer
- **NEVER** use an edging blade, circular saw blade, or any other type of saw blade on an SRM/PAS/SB unit. Only use brushcutter blades approved for use on your model brushcutter.
- **NEVER** use a dull or damaged blade.

- **ALWAYS** use blade only for application for which it was intended
- **ALWAYS** use the correct front handle for the type of blade being used. ECHO Inc. recommends using a U-Handle for all blade use.

REACTION FORCES - Push/Pull - Kickback/Kick-out

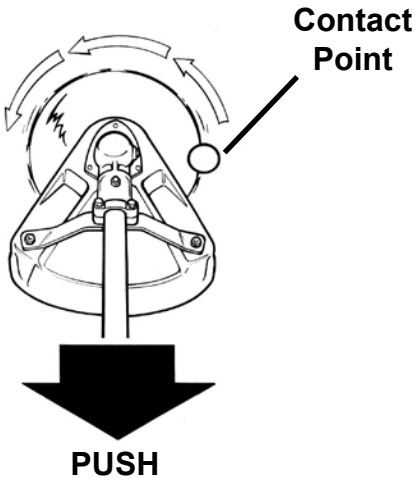
During normal use, operating a brushcutter with a circular metal blade can produce sudden strong reaction forces that are difficult to control. Strong reaction forces can cause a loss of balance or loss of control of the unit, resulting in serious injury to operator and bystanders.

Understanding what causes these reactive forces may help you to avoid them, and can help you to maintain control of the unit if you experience a sudden reaction during cutting. Reactive forces occur when the force being applied by the cutting teeth of a blade meet resistance, and some of the cutting force is directed back toward the unit. The greater the cutting force or the amount of resistance, the greater the reactive force.



Push and Pull Forces

Push and pull forces are reactive forces that push the unit directly toward the operator, or that pull the unit directly away from the operator. These forces are the result of cutting on the sides of the blade. The direction of the force depends on the side of the blade being used, and the direction of blade rotation at the point of contact. The reactive force is in the *opposite direction of blade rotation at the contact point*, regardless of where the contact is being made. These types of reactive forces are also called “Blade Thrust.”



As shown in the illustration, a blade turning counter-clockwise will cause the unit to pull away from the operator if the point of cutting resistance is on the left side of the blade. If the point of cutting resistance is on the right side of the blade, the unit will push back toward the operator. In both examples, the reactive force is in the opposite direction of blade rotation at the contact point where resistance occurs.

Kickout

Kickout is also a reactive force caused by resistance to cutting, but the direction of blade thrust is lateral (to the left or right of the blade), instead of forward or back toward the operator. In most cases, Push, Pull, and Kickout can be reduced or eliminated by:

- Using the correct blade for the cutting job
- Using properly sharpened blades
- Applying consistent, even force to the blade during the cut
- Avoiding obstacles and ground hazards
- Using extra care when cutting harder materials such as extremely dry brush, saplings, and small trees
- Cutting from a stable, secure position

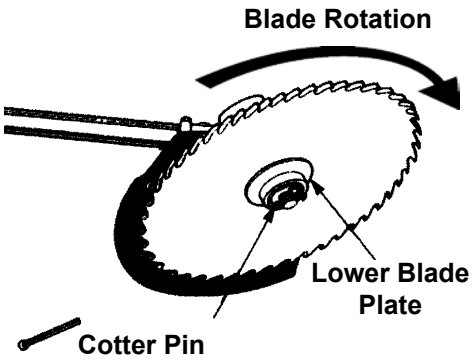
Kickout

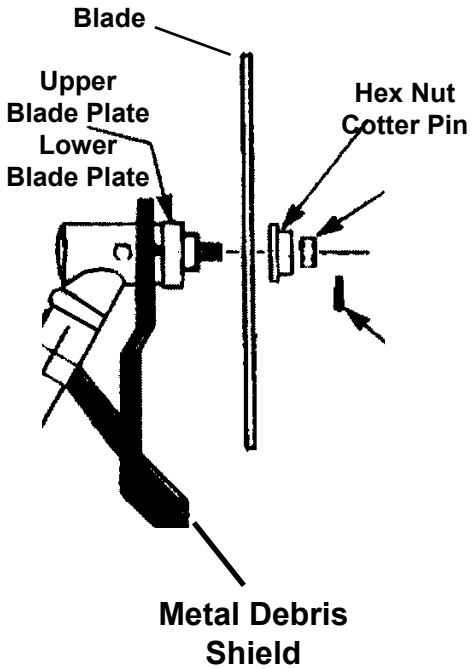
Blade Assembly

Follow the instructions in the Operator's Manual to install a blade on your unit.

- **ALWAYS** wear gloves when handling and assembling blade to unit.
- **ALWAYS** use correct assembly hardware when installing blade and debris shield.
- **ALWAYS** use correct blade arbor size.
- **ALWAYS** install blade with teeth pointed in direction of rotation.
- **ALWAYS** tighten blade hardware securely using properly sized tools
- **ALWAYS** use a new cotter pin when installing or replacing blades.
- **ALWAYS** check to make sure head locking tool and hex wrench have been removed from cutting head after assembly.

Blade Assembly





Blade Cutting Capacities

Do not exceed recommended blade cutting capacity. Use a chain saw for larger trees. Exceeding cutting capacity can cause blade binding in cut, blade damage, and risk of injury from blade breakage during cutting. Cutting capacity depends on blade diameter - see operator's manual or catalog for more information.

Blade Applications
Use blades only in recommended applications.

- **Grass/Weed Blade -** Use Grass/Weed blades for cutting thick grasses, weeds, light to medium vegetation, and thick-stalked growth such as reeds and palm grass.
- **Brush Blades -** Use Brush blades for cutting dried brush, small saplings, and large weeds with thick stalks.
- **Clearing Blades -** Use Clearing Blades to cut saplings, small trees, and thick, heavy brush.

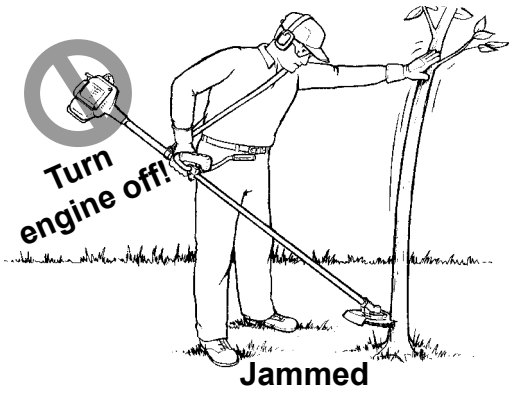
Grass/Weed Blade

Brush Blade

Clearing Blade

Blade Cutting Problems
Binding - Blades may bind in the cut if dull or forced. Binding can damage blade, and result in blade breakage or injury from fragments and flying debris. If a blade binds in a cut, don't try to get it out by applying "up and down" force to pry the cut open. Applying prying force to the blade can bend the blade, and result in blade failure and injury.

To free a blade that is bound in the cut, **stop** the engine, and support the trimmer/brushcutter to keep stress off the blade. Push the tree away from the entry point of the cut to open the cut, and pull the blade directly away from the cut in a straight-line motion. Use caution when releasing the tree to avoid being struck by spring-back or falling.



Jammed

Open cut to free blade with engine off

Inspect the blade for damage before proceeding. Sharpen teeth if dull, or replace blade if cracked, bent, missing teeth, or otherwise damaged. (See "Blade Sharpening," on next page for important sharpening information

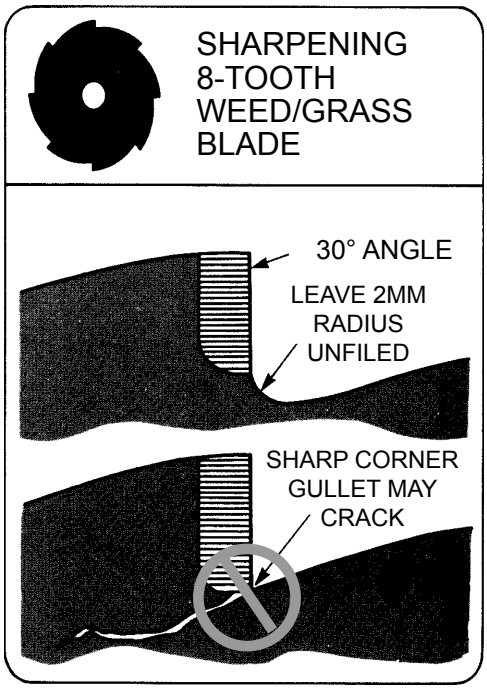
To prevent binding:

- Keep blades sharp
- Avoid excessive pressure during cuts
- Don't exceed cutting capacity of blade
- Don't use blades with damaged or missing cutting teeth
- Don't rock blades in cut

Inspect jammed blade for damage

Blade Sharpening

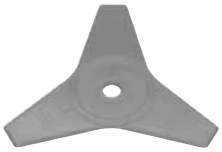
All blades must be kept sharp for best cutting performance. 8 Tooth Grass/Weed blades can be sharpened using the instructions in the Operator's Manual. Brush and Clearing blades require professional sharpening. Improper sharpening can cause blade failure and result in severe injury.



PLASTIC/METAL TRI-CUT BLADES

Use blade set-up guide for configuring trimmer-brushcutter to use plastic or metal tri-cut blades.

- Use Plastic tri-cut blades to cut grass and weeds
- Use Metal Tri-cut blades to cut reeds, large weeds, and light brush
- Read, understand, and obey all trimmer-brushcutter safety rules before using tri-cut blades.
- **NEVER** use tri-cut blades to cut heavy brush, saplings, or small trees.



Plastic Tri-Cut Blade

SRM Pro Maxi-Cut

GT Maxi-Cut

PE Models

DANGER

Striking concrete or other hard materials with spinning edger blade can cause severe blade damage or breakage, and serious or fatal injuries from flying fragments. Stop unit immediately and check blade if an object is struck. Replace blade if broken, cracked, bent, chipped or otherwise damaged, or if unit began shaking or vibrating after striking the object.

Small stones and other hard debris can be thrown from blade guard, and strike bystanders and nearby buildings. Keep bystanders a minimum of 50 feet (15 m) away when operating edger. Always keep flow of edging debris directed away from windows, parked vehicles, buildings, and bystanders. Always operate edger with unit to right side of body only. Wear eye protection, work gloves, and protective clothing. Use full face shield when edging in rocky or debris-filled soil.

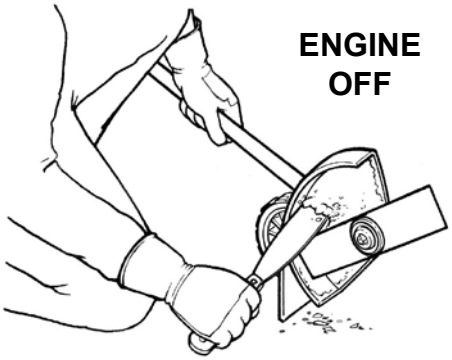
WARNING

Edger operation may scatter ground debris that can cause unstable or slippery footing, and increase the risk of slips and falls. Always maintain proper footing and balance while operating edger. Stop unit if necessary, and remove excessive debris from work path before continuing.

- **ALWAYS** maintain control using a secure, wrap-around, two-handed grip when operating the power edger. If the edger strikes a buried object, it may kick up and out of the edging cut forcefully, causing serious injury.
- **NEVER** operate with unit on left side of operator. Use only on right side of body to keep operator out of edger debris flow.
- **ALWAYS** maintain a stable, balanced stance, and use extra care when walking on uneven, slippery, or sloping surfaces.
- **ALWAYS** use extreme care when walking on wet surfaces. Wet surfaces reduce traction, and increase the risk of slips and falls.
- **ALWAYS** be aware of ground and walkway conditions in the work area, and be prepared to maintain balance and footing when conditions change.
- **ALWAYS** check edging area for all potential hazards before edging, and remove objects that can be thrown or cause kick-out.
- **NEVER** edge where the cut line passes directly over buried hazards such as sprinkler pipes, electric wiring, gas lines, or other similar hazards.
- **NEVER** operate edger in any area where electric extension cords are on the ground.
- **NEVER** use edger in gravel, rocky soil, or in areas with hard ground cover such as decorative rocks.
- **NEVER** attempt to clear debris build-up from debris shield by tapping shield against the ground. **ALWAYS** shut engine off, wait for blade to stop, and disconnect spark plug wire. Remove debris with a small non-scratching scraper. Wear gloves to protect hands from contact with sharp edges and hot surfaces.

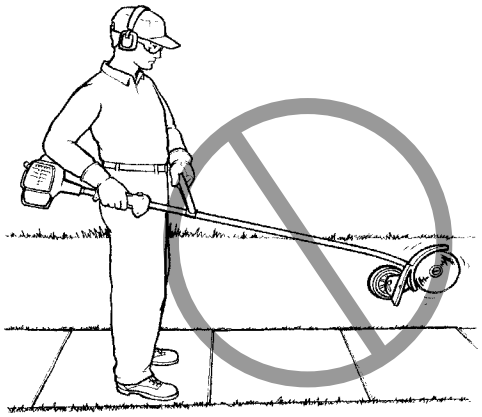
Edger Operator in Operating Position

Prohibition - Edger Operation w/Electric Cord on Ground



Debris Removal with Scraper

- **ALWAYS** use only approved attachments and edger blades.
- **NEVER** operate edger with damaged or missing debris shield.
- **NEVER** adjust edger blade height with engine running. Stop engine, disconnect spark plug lead, and make adjustments.
- **NEVER** carry edger around the work site while the blade or attachment is rotating. **ALWAYS** shut the engine off and let the blade or attachment stop before lifting the edger and moving to a new position.
- **ALWAYS** avoid contact with engine, muffler area, and gear case during and immediately after operation. These areas get extremely hot, and touching them can cause serious burns.
- **ALWAYS** wear work gloves to protect hands from sharp edges or hot surfaces.
- **NEVER** allow edger blade to strike concrete or other hard surfaces. Blade contact with hard surfaces can dislodge pieces of sidewalk, curb, paved surfaces, or other hard materials, and cause serious injury from flying debris.
- **NEVER** set depth of blade cut deeper than 1/2” below guide surface. Cutting too deep increases risk of edger kickout from cut and possible loss of control of unit.
- **ALWAYS** keep edger blade vertical during edging - **NEVER** operate with blade tilted at an angle.
- **ALWAYS** operate edger only when conditions provide good visibility and clear line of sight to edging cut line.
- **ALWAYS** release trigger and allow blade to come to a stop before lifting unit out of the cut.
- **ALWAYS** release trigger and stop engine if someone enters the 50 foot radius danger zone. Wait for visitor to leave the danger zone area before restarting engine.
- **NEVER** leave a power edger running while ground or guide surface debris is being removed. Shut the engine off, and place the unit in a safe place where it will not be a trip hazard.



Prohibition - Edger Blade Spinning Above Knee Level

PAS ATTACHMENTS

DANGER

Misuse, improper assembly, or use of unapproved attachments, can result in serious injury, engine failure, and voiding of warranty. Use only attachments approved for use on Pro Attachment Series models. Contact with moving cutting or work attachments can cause serious injury. Keep clear of moving cutting/ work attachment.

Follow assembly instructions in attachment Operator's Manual and PAS power head manual.

- Drive shaft housing and gear case gets hot during use. **ALWAYS** wear gloves when handling a unit that has been in use.

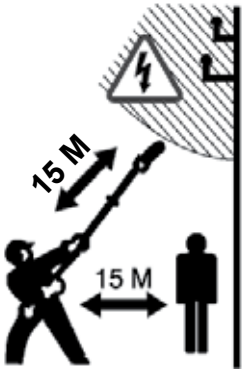
PAS HEDGE CLIPPER ATTACHMENT

DANGER

Hedge clipper blades are very sharp and can cause severe injuries, even if engine is off and blades are not moving. Avoid contact with blades. Wear gloves to protect hands.

- **ALWAYS** grip unit with both hands when operating unit. Left/front handle in left hand and right/rear handle in right.
- **ALWAYS** wear work gloves to protect hands from sharp edges on blades.
- **NEVER** touch a moving blade or allow it to contact any part of your body.
- **NEVER** feed blades toward your body when cutting - keep blades directed away from yourself at all times.

- **NEVER** use unit within 15 meters (50 feet) of any power lines or wires that may be conducting electricity. Contact with wires carrying electrical current can result in shock or electrocution.
- **NEVER** exceed the cutting capacity of the hedge clippers - forcing the blades to cut materials thicker than the hedge clipper is designed to handle will result in jams, blade damage, and poor overall performance.
- **ALWAYS** use a suitable tool such as a power pruner or chain saw to cut branches larger than the hedge clipper will allow.
- **NEVER** attempt to cut more than 6 inches from a hedge or shrub in one cutting pass. Use multiple passes for cleaner, safer cuts, and better control.
- **ALWAYS** stop engine and disconnect spark plug lead before removing a blade obstruction.
- **NEVER** use dull, loose, or damaged blades. Keep blades properly adjusted and lubricated at all times.
- **NEVER** adjust blades when engine is running. Shut engine off, and disconnect spark plug lead from spark plug.
- **ALWAYS** use correct tools to perform blade adjustments. Use long wrenches to keep hands away from sharp blade edges.
- **ALWAYS** place blade cover on blades when transporting or storing unit.



15 meters (50 feet)

Blade Cover

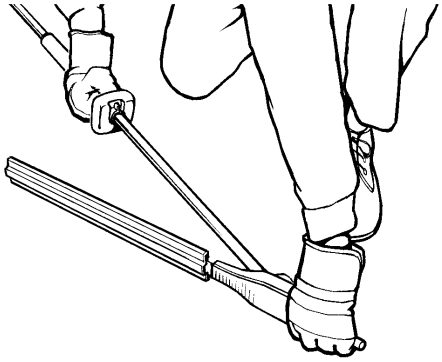
PAS HCA ARTICULATING HEDGE CLIPPER ATTACHMENT

DANGER

Metal blades are very sharp and can cause severe injuries, even if engine is off and blades are not moving. Avoid contact with blades. Wear gloves to protect hands.

- **ALWAYS** read, understand, and obey all hedge clipper warnings, safety rules, and operating instructions before using unit.
- **ALWAYS** shut unit off and make all cutting angle adjustments on the ground.

- **ALWAYS** use adjustment handle to hold blade assembly when making adjustments.
- **ALWAYS** lock blades securely in position before lifting unit off ground.
- **ALWAYS** check cutting area for hidden wires, fence posts, and other obstacles before starting.
- **ALWAYS** maintain a line of sight to the cutting area.
- **ALWAYS** use extreme care when cutting overhead.

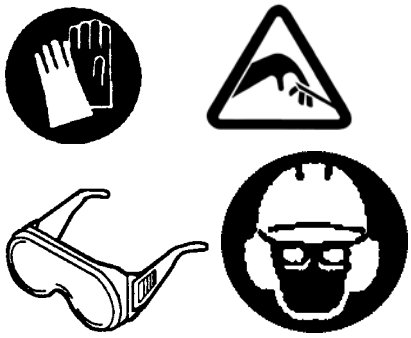


Open blades on ground only with engine stopped.

PAS POWER PRUNER ATTACHMENT

DANGER

Saw chain teeth are very sharp and can cause severe injuries, even if engine is off and chain is not moving. Avoid contact with saw chain. Wear gloves to protect hands.



KICKBACK HAZARDS

Contact between the tip of the guide bar nose and objects such as tree limbs and branches can cause Kickback. Kickback is a sudden, forceful reaction that throws the guide bar and saw chain up and away from the point of contact, and in an arc back toward the operator.

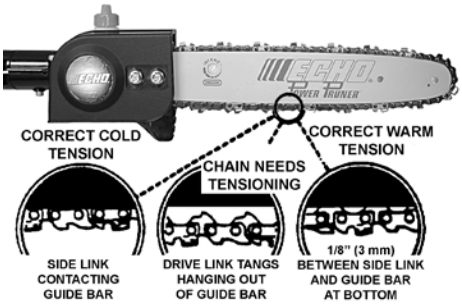
Kickback can also occur when the moving saw chain gets pinched in the cut, pushing the unit straight back toward the operator with a sudden, forceful reaction.

Kickback can result in loss of balance, loss of unit control, and serious injury from contact with moving saw chain, or contact between the unit and surrounding hazards.

Kickback

- **NEVER** operate a Power Pruner Attachment while on a ladder, in a tree, or on slippery or unstable surfaces.

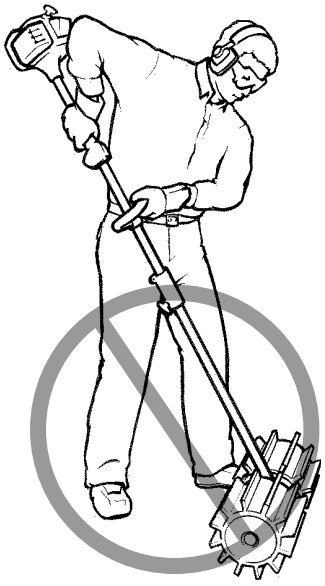
- **ALWAYS** make sure that the pruned tree branch or limb can fall safely to the ground after cutting.
- **NEVER** stand under a tree limb or branch during cutting
- **ALWAYS** keep guide bar cover on guide bar until unit is ready to be used.
- **ALWAYS** keep chain properly tensioned
- **NEVER** make guide bar/saw chain adjustments while unit is running. Stop engine and disconnect spark plug lead before tensioning chain.
- **ALWAYS** keep saw chain sharp. Dull chain will cause increased vibration and premature guide bar and chain failure.
- **ALWAYS** use only to cut wood. Cutting any other type of material can cause increased risk of kick-back and damage to saw chain and guide bar.
- **ALWAYS** stop engine immediately and check chain and guide bar for damage if the cutting attachment strikes an obstacle during cutting.
- **NEVER** use a saw chain with missing or damaged teeth. Excessive vibration and erratic operation can cause chain failure and serious injury.



Keep chain properly tensioned

PAS PROPADDLE/PROSWEEP ATTACHMENT

Misuse, improper assembly, or use of unapproved attachments, can result in serious injury, engine failure, and voiding of warranty. Use only attachments approved for use on Pro Attachment Series models. Contact with moving work attachments can cause entanglement and serious injury. Keep clear of moving work attachment.



- **ALWAYS** keep hands and feet away from moving work attachment.
- **ALWAYS** allow attachment to come to a complete stop before handling.
- **ALWAYS** keep attachment far enough away from your body to prevent entanglement with rotating parts.

PAS PRO-THATCH ATTACHMENT

Misuse, improper assembly, or use of unapproved attachments, can result in serious injury, engine failure, and voiding of warranty. Use only attachments approved for use on Pro Attachment Series models. Contact with moving work attachments can cause entanglement and serious injury. Keep clear of moving work attachment.

- **ALWAYS** check Pro-Thatch tines for damage and secure attachment before using unit. Replace tines if damaged or missing.
- **NEVER** use ProThatch without dethatcher guard in place. Operation without a guard exposes operator to flying debris and rotating steel tines.
- **ALWAYS** install J-Handle before using unit, and adjust position as needed to accommodate operator. J-Handle provides best control and comfort when operating unit.
- **NEVER** replace tines with engine running. Stop engine and disconnect spark plug lead. Wear work gloves when replacing or handling tines.

Pro-Thatch Attachment

PAS POWER EDGER ATTACHMENT

Misuse, improper assembly, or use of unapproved attachments, can result in serious injury, engine failure, and voiding of warranty. Use only attachments approved for use on Pro Attachment Series models. Contact with moving cutting or work attachments can cause entanglement and serious injury. Keep clear of moving work attachment.

- **ALWAYS** check edging area for hidden objects, and remove all dangerous debris.
- **ALWAYS** stay clear of spinning edger blade.
- **NEVER** operate with unit on left side of operator. Use only on right side of body to keep operator out of edger debris path.
- **NEVER** use edger in gravel, rocky soil, or in landscape beds with decorative rock ground cover.
- **ALWAYS** use only approved edger blades.
- **NEVER** use edger blades on any trimmer or brush cutter.

Position Edger on right side of operator only

- **NEVER** operate edger attachment unless all edger blade hardware has been properly installed.
- **ALWAYS** use a new split pin each time blade is installed or replaced.
- **NEVER** operate edger with damaged or missing debris shield.
- **NEVER** adjust edger blade height with engine running. Stop engine, disconnect spark plug lead, and make adjustments. Wear work gloves to protect hands from hot surfaces if unit has been in operation.
- **NEVER** allow edger blade to strike concrete or other hard surfaces. Blade contact with concrete and hard surfaces will dislodge pieces of material and cause injury from flying debris.

PAS TILLER/CULTIVATOR ATTACHMENT

Misuse, improper assembly, or use of unapproved attachments, can result in serious injury, engine failure, and voiding of warranty. Use only attachments approved for use on Pro Attachment Series models. Contact with moving cutting or work attachments can cause entanglement and serious injury. Keep clear of moving work attachment.

- **NEVER** use cultivator if parts are missing or damaged.
- **NEVER** use cultivator if shield is not securely in place.
- **NEVER** clean or reposition cultivator tines with engine running. Stop engine and remove spark plug lead.
- **ALWAYS** check ground for hidden obstacles before use, and remove or mark location to prevent striking with tines.
- **NEVER** use cultivator where there may be buried electrical wire, sprinkler tubing, or underground pipes.

Clearing Jams

DANGER

If the cutting head/work attachment gets jammed by an obstruction and can't move, the clutch allows the engine to keep running. As soon as the obstruction is removed, the cutting head/work attachment will start moving again. To protect yourself from serious injury when clearing jams, follow these important safety rules:

- **ALWAYS** switch the unit off and disconnect the spark plug before clearing a jam.
- **NEVER** reach for or try to remove jammed material while the engine is running.
- **ALWAYS** inspect the cutting head/work attachment after clearing a jam to make sure all jammed material has been cleared.
- **ALWAYS** make sure cutting head/work attachment has not been damaged.

MAINTENANCE

WARNING

Operating a poorly maintained unit can result in serious injuries to operator and others. Maintain unit as instructed in Operator's Manual. Keep blades sharp and properly adjusted, and replace broken parts immediately.

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.

Your unit requires regular maintenance for safe operation and reliable performance. Using a poorly-maintained unit can result in an injury caused by a part failure or other malfunction. Follow these important safety instructions to reduce the risk of injury caused by poor maintenance.

- **NEVER** test for ignition spark by grounding spark plug near cylinder plug hole. A spark could ignite fuel vapor, causing serious injury from explosion or fire.

- **NEVER** use a unit with broken, damaged, missing, or worn parts. Contact your dealer for repairs if problems are found.

- **NEVER** use substitute parts, parts from other models or brands, or used parts, when performing maintenance or repairs. Use only new parts that are manufactured for your specific serial number and model trimmer.

- **NEVER** make temporary repairs on a unit - taking shortcuts or using questionable parts and performing repairs that are not approved may create a safety hazard that can cause serious injury. Improper repair may also cause premature part failures, and void your product warranty.

- **ALWAYS** keep blades sharp. Cutting with dull blades increases the chances of jams and binding, reduces cutting efficiency, and increases operator fatigue.

- **ALWAYS** keep hedge clipper blades properly adjusted. Improperly adjusted blades may result in poor cutting performance, increased risk of jams, and premature blade wear or failure.

- **ALWAYS** keep blades and gear case properly lubricated. Poor lubrication can cause result in part failures and cause overheating.

- **ALWAYS** keep fasteners tightened securely, and use the correct tools for the job. Operation with loose fasteners can result in hazardous operation.

- **ALWAYS** do a safety check after performing any service or maintenance on the unit. Make sure all parts have been properly installed, all hardware is properly tightened, and all guards and shields are in place.

- **NEVER** reach into any opening while the engine is running. Moving parts may not be visible through openings.

- **ALWAYS** stop unit immediately and correct any problem if unit does not run properly after performing service or maintenance. Operating a unit that has been improperly repaired may result in serious injury.

- **ALWAYS** have major service performed by a qualified service technician. See your dealer for authorized service support.

STORAGE

DANGER

Improper storage can result in fire and damage to equipment and property. Follow storage instructions in Operator's Manual. Obey all rules for safe fuel handling.

Your Operator's Manual contains detailed instructions for preparing your unit for storage. Follow the instructions in your manual carefully, and make sure you observe these important safety precautions:

- **NEVER** store a unit with fuel mix in the fuel tank. Leakage can result in fire.

- **ALWAYS** keep muffler exhaust area clear of flammable debris when storing or transporting unit. Allow unit to cool down before placing in a confined area such as a trunk, covered pickup truck bed, or fully enclosed trailer.

- **NEVER** store unit in an enclosure where fuel fumes can accumulate or reach an open flame or spark.

- **ALWAYS** stay away from heat, sparks, and open flame when draining fuel tank for prolonged storage. Wipe up spills immediately, and dispose of rags and drained fuel safely.

- **ALWAYS** disconnect spark plug lead and install blade cover when storing unit, and keep unit out of the reach of children.

GLOSSARY

Grass Trimmer-Brushcutter Terms

TERM	DEFINITION
Air Filter	Filters air used by the engine for combustion. Keeps dirt and dust out of the engine to help extend engine life.
Alternative Stop Procedure	Procedure used to stall engine if Stop switch malfunctions and unit does not stop when switch is moved to stop position. Move choke lever to Cold Start (Choke) position to stall engine.
ANSI Z87.1	American National Standards Institute safety standard for safety glasses. Safety glasses and goggles that meet the requirements of this standard are marked with this number.
Anti-vibration System	A design that minimizes the vibration created during operation. Reduced vibration helps reduce operator fatigue and risk of injury.
Barrier Bar	A protective device that restrains rearward movement of a unit.
Binding	Slowing or stopping of cutting attachment caused by a restriction, or by resistance to the cutting action
Blade Cover	Optional protective plastic cover used to prevent accidental contact with blades. Used when carrying, transporting, or storing unit.
Blade Thrust	A forceful push created by a blade when sudden cutting resistance occurs.
Blades	Devices that are used to cut or trim shrubs, bushes, and other vegetation.
Brush Blade	A circular metal blade designed to cut light woody growth such as brush.
Brushcutter	SRM (Straight Shaft) unit using a rotating blade to cut weeds, brush, small trees, and small vegetation.
Carburetor	Mixes fuel and air together so combustion can tank place in engine.
Catalytic Muffler	Reduces noise and emissions.
Choke Control Lever	Controls choke open/closed settings. Used for starting/running engine. Also used for emergency stops.
Clearing Blade	A circular metal blade designed to cut small trees and saplings.
Clutch	Centrifugal device that transmits rotary motion of crankshaft to the gear case assembly.

Clutch Engagement Speed	The engine speed or R.P.M. at which the clutch engages and transmits power to a drive shaft or sprocket.
Cotter Pin	A fastening device used to retain hex nuts on threaded shafts. Also called a split pin.
Cultivator Attachment	A rotating work attachment used on Power Attachment Series units. Rotating tines cultivate and break up soil for weeding, planting seeds, and working mulch into the soil.
Cut-Off Knife	A cutting device attached to a plastic debris shield that cuts nylon trimming line to the correct length.
Cutting Head	A device that is designed to cut material by means of a nylon line head, metal or nylon blades, or rotating saw chain.
Danger Zone	An area around the operator where there is a high risk of injury from contact with flying debris or sharp cutting head/ work attachments.
Debris Shield	A plastic or metal barrier that helps protect an operator from being struck by debris when using outdoor power equipment.
Edger	A device with rotating blade that cuts a clean, straight edge. Normally used along the edge of hard surfaces, such as between the lawn and a sidewalk.
Face Mask	Protective device worn over mouth and nose. Protects against breathing sawdust or other small particles.
Face Shield	Protective device worn over safety glasses or safety goggles to provide face protection from flying debris.
Foot Protection	Heavy-duty footwear that helps protect feet from injury.
Front Handle	Provides secure support of unit for proper balance and control. Helps reduce operator fatigue.
Fuel Filter	Filter element located on end of fuel line. Filters fuel mix before it enters carburetor.
Fuel Tank	Contains fuel mix used for engine operation.
Gear Case	Provides rotating or reciprocating motion to a cutting head or work attachment.
Goggles, Safety	Protective eyewear that fits over glasses and provides complete, wrap-around protectionl
Grass Trimmer	A unit designed to cut only grass and light weeds.
Grass/Weed Blade	A blade used to cut soft, light vegetation, such as grass and weeds. Not for use in clearing brush, saplings, or small trees.
GT	Grass Trimmer (Curved Shaft). GT models cannot use a metal blade.

GLOSSARY

Harness	An adjustable shoulder strap used to support a trimmer or brushcutter. Helps operator control unit by providing a stable support and reducing fatigue. Required for all Brushcutter applications.
Head Protection	Helmet-like device that protects the head from falling materials.
Hearing Protection Devices	Protective devices such as ear plugs or ear muffs that protect hearing by reducing exposure to harmful noises.
Hedge Clipper	A cutting device with reciprocating blades. Used to cut hedges, shrubs, and ornamental vegetation.
Idle Speed	The normal running speed of the engine when the throttle trigger is not depressed.
Kickout	The sudden and forceful action that occurs when a blade propels itself out of a cut due to binding or pinching of the blade.
Manual Line Head	A line head that requires manual indexing of cutting line.
Maxi-Cut Blade	A cutting head with 3 straight blades that can be used in place of a nylon line head. When the blade rotates, centrifugal force causes the blades to fully extend, creating a wide cutting swath.
Maximum Diameter Cut	The largest diameter material that can be cut by the cutting attachment.
Muffler Housing	Provides protective barrier around muffler. Helps prevent accidental contact with muffler when unit is hot.
PAS	Power Attachment Series - System consisting of an engine power source, drive shaft, and a variety of optional work attachments that can be changed as needed.
Power Head	Engine assembly - includes engine, clutch, fuel system, ignition system, air filter, and recoil starter.
Protective Clothing	Clothing that provides protection from work place hazards that can cause cuts, scratches, or contact injuries.
Pruner	A cutting device used to cut small limbs and branches from trees, bushes, and shrubs.
Purge Bulb	Draws fuel mix from gas tank to carburetor. Helps engine to start by removing air from fuel line.
Push and Pull	Reactive forces that push the unit toward the operator, or that pull the unit away from the operator.
Quick Release Latch	A latch design that allows a quick separation of the unit from the support harness when there is an emergency.

Rapid Loader Line Head	A line head that allows rapid nylon line reloading using short, pre-cut pieces of line.
Rear Handle	Houses Stop Switch, Throttle Trigger, and Throttle Trigger lockout lever. Gripped by operator to help support unit, control engine speed, and shut unit off.
Recoil Starter	Starts engine by turning crankshaft and moving piston up and down.
Recoil Starter Handle	Molded rubber handle attached to starter cord. Used to start engine.
Ricochet	When a thrown object bounces off another surface.
Safety Glasses	Eye protection devices that are worn like glasses.
Safety Goggles	Eye protection devices that fit flush against the face and cover the complete eye and socket.
SB	Split Boom model (similar to PAS)
Scalping	Cutting grass or other vegetation down to ground level. Used for clearing grass and other growth.
Scything	Using an arcing cutting motion to trim weeds and grass.
Semi-Automatic Line Head	Nylon line head that feeds line out when tapped on the ground during normal operation.
Spark Arrestor Muffler	Muffler with spark arrestor screen that prevents hot, glowing particles of carbon from leaving the muffler.
Spark Plug	Provides spark to ignite fuel/air mixture in engine.
SRM	Shoulder Rotary Mower, also known as a trimmer-brushcutter. SRM (Straight Shaft) models can be adapted to use metal blades (Brushcutter Application).
Stalling Engine	Using choke lever to provide an overly rich fuel/air mixture that stops engine from running.
Stop Switch	Electrical switch used to start/stop engine. Grounds ignition circuit in Stop position to prevent firing of spark plug.
Throttle Trigger	Controls engine speed.
Throttle Trigger Lockout Lever	Prevents the throttle trigger from operating unless lockout lever is depressed.
Tri-Cut Blade	A blade with 3 cutting edges.
U-Handle	A bicycle-style handlebar that provides two handgrips spaced apart for maximum cutting control.
Wide Open Throttle	The highest engine speed attainable when the throttle trigger is held fully depressed.

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To locate your nearest ECHO dealer visit our website, http://www.echo-usa.com, or call 1-800-432-ECHO (3246). Ask how to obtain a FREE Safety Video. Echo's Supplemental Safety Video provides helpful safety and cutting information.

To locate your nearest Shindaiwa dealer visit our website, http://www.shindaiwa-usa.com, or call 1-877-986-7783. Ask how to obtain a FREE Safety Video. Shindaiwa's Supplemental Safety Video provides helpful safety and cutting information.

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