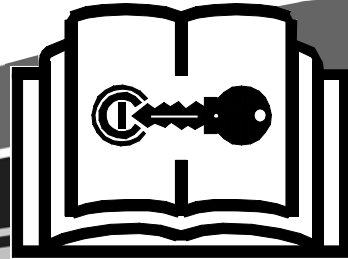


BC1000XL Brush Chipper

Operator's Manual



BC1000XL_o3_06
Serial No. 5001 -
Order No. 105400V85
Cabled Order No. 163551738

Vermeer[®]

INTRODUCTION

This manual explains the proper operation of your machine. Study and understand these instructions thoroughly before operating or maintaining the machine. Failure to do so could result in personal injury or equipment damage. Consult your Vermeer dealer if you do not understand the instructions in this manual, or need additional information.

The instructions, illustrations, and specifications in this manual are based on the latest information available at time of publication. Your machine may have product improvements and features not yet contained in this manual.

Vermeer Manufacturing Company reserves the right to make changes at any time without notice or obligation.

Operation instructions are included in the two Operator's Manuals provided with the machine. The tethered (cabled) manual must remain attached to the machine for ready reference. Store it in the manual storage box when not in use.

Lubrication and maintenance procedures are in the Maintenance Manual provided with the machine. Refer to it for all lubrication and maintenance procedures.

Additional copies of the manuals are available from your dealer. Use the reorder number on the front cover to order additional manuals.

Copies of this manual are available in Spanish from your dealer.

Se dispone de ejemplares de este manual en español.

NOTICE TO OWNER

You are requested to notify Vermeer Manufacturing Company when you have purchased a **used** Vermeer machine. Notify the Customer Data Department by telephone: 800-829-0051 or 641-628-3141; email: customerdata@vermeermfg.com; internet: www.vermeer.com or www.vermeerag.com; or, letter: Customer Data Dept., Vermeer Manufacturing Company, PO Box 200, Pella IA 50219 USA. Upon request, an owner of a used Vermeer machine will receive one free set of Operator's, Maintenance and Parts manuals.



NOTE: Right and left sides are determined when facing in the direction of forward travel.

TRADEMARKS

VERMEER and **VERMEER** Logo are trademarks of Vermeer Manufacturing Company.

CUMMINS and **FLEETGUARD** are trademarks of Cummins Engine Company, Inc.

EV PATENTS

This machine may be covered by one or more of the following patents:

EP 1 215 991	US 5,692,549	US 6,422,495	US 7,040,558
US 4,848,423	US 5,845,689	US 6,446,889	US 7,044,409
US 4,932,196	US 5,893,262	US 6,840,471	US 7,077,345
US 4,976,095	US 5,950,942	US 6,843,435	US 7,204,442
US 5,588,474	US 6,014,996	US 6,931,826 B1	US D 308,682
US 5,657,803	US 6,138,932	US 6,978,955	
US 5,692,548	US 6,412,715	US 7,011,258	

(Other U.S. and foreign patents pending.)

VERMEER NEW INDUSTRIAL EQUIPMENT LIMITED WARRANTY

(EFFECTIVE NOVEMBER 1, 2006)

WARRANTY PERIOD: 12 Months / 1000 Hours

Vermeer Mfg. Company (hereinafter "Vermeer") warrants each new Industrial product of Vermeer's manufacture to be free from defects in material and workmanship, under normal use and service for one (1) full year after initial purchase/retail sale or 1000 operating hours, whichever occurs first. This Limited Warranty shall apply only to complete machines of Vermeer's manufacture, parts are covered by a separate Limited Warranty. **EQUIPMENT AND ACCESSORIES NOT OF VERMEER'S MANUFACTURE ARE WARRANTED ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY AND SUBJECT TO THEIR ALLOWANCE TO VERMEER ONLY IF FOUND DEFECTIVE BY SUCH MANUFACTURER.**

EXTENDED WARRANTY OPTIONS ARE AVAILABLE FOR PURCHASE

WARRANTY TERMS

During the Limited Warranty period specified above, any defect in material or workmanship in any warranted item of Vermeer Industrial Equipment not excluded below shall be repaired or replaced at Vermeer's option without charge by any authorized independent Vermeer dealer. The warranty repair or replacement must be made by a Vermeer independent authorized dealer at the dealer's location. Vermeer will pay for replacement parts and such authorized dealer's labor in accordance with Vermeer's labor reimbursement policy. Vermeer reserves the right to supply remanufactured replacement parts as it deems appropriate.

RETAIL PURCHASER RESPONSIBILITY: This Limited Warranty requires proper maintenance and periodic inspections of the Industrial Equipment as indicated in the Operator's Manual furnished with each new Industrial Equipment. The cost of routine or required maintenance and services is the responsibility of the retail purchaser. The retail purchaser is required to keep documented evidence that these services were performed.

This Vermeer New Industrial Equipment Limited Warranty may be subject to cancellation if the above requirements are not performed.

Vermeer Industrial Equipment with known failed or defective parts must be immediately removed from service.

EXCLUSIONS AND LIMITATIONS

The warranties contained herein shall **NOT APPLY TO:**

- (1) Any defect which was caused (in Vermeer's sole judgment) by other than normal use and service of the Industrial Equipment, or by any of the following; (i) accident (ii) misuse or negligence (iii) overloading (iv) lack of reasonable and proper maintenance (v) improper repair or installation (vi) unsuitable storage (vii) non-Vermeer approved alteration or modification (viii) natural calamities (ix) vandalism (x) parts or accessories installed on Industrial Equipment which were not manufactured or installed by Vermeer authorized dealers (xi) the elements (xii) collision or other accident.
- (2) Any Industrial Equipment whose identification numbers or marks have been altered or removed or whose hourmeter has been altered or tampered with.
- (3) Any Industrial Equipment which any of the required or recommended periodic inspection or services have been performed using parts not manufactured or supplied by Vermeer or meeting Vermeer Specifications including, but without limitation, engine tune-up parts, engine oil filters, air filters, hydraulic oil filters, and fuel filters.
- (4) New Industrial Equipment delivered to the retail purchaser in which the warranty registration has not been completed and returned to Vermeer within ten (10) days from the date of purchase.
- (5) Any defect which was caused (in Vermeer's sole judgment) by operation of the Industrial Equipment not abiding by standard operating procedures outlined in the Operator's Manual.
- (6) Engine, battery, and tire Limited Warranties and support are the responsibility of the respective product's manufacturer.
- (7) Transportation costs, if any, of transporting to the Vermeer dealer. Freight costs, if any, of transporting replacement parts to the Vermeer dealer.
- (8) The travel time of the Vermeer dealer's service personnel to make a repair on the retail purchaser's site or other location.
- (9) In no event shall Vermeer's liability exceed the purchase price of the product,
- (10) Vermeer shall not be liable to any person under any circumstances for any incidental or consequential damages (including but not limited to, loss of profits, out of service time) occurring for any reason at any time.
- (11) Diagnostic and overtime labor premiums are not covered under this Limited Warranty Policy. Oils and fluids are not covered under this Limited Warranty.

- (12) Depreciation damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, lack of proper protection during storage.
- (13) Accessory systems and electronics not of Vermeer's manufacture are warranted only to the extent of such manufacturer's respective Limited Warranty if any.
- (14) Downhole toolage is not covered under this warranty.
- (15) Wear items which are listed by product group as follows:

ENVIRONMENTAL: Belts, Chain, Wear Strips, Cutter Wheels, Pockets, Knives, Service Items, Shear Bar/Bedknife, Sprockets, Brake Pads, Bolts/Torqued Parts, Wear Blocks, Hammermill Bearings, Discharge Conveyor Belts, Hoses, Clutches, Clutch Components, Hammers, Teeth, Blades, Oil Filters, Fuel Filters, Screens, Rods, Rotor Plates, Rollers

TRACK: Digging Chain, Base Plates, Cups, End Idler, Wear Plates/Track Frames, Flashings, Pins At Pivot Points, Sprockets, Teeth, Boom Wear Items, Track Chain, Conveyor Belts, Plastic Wear Strips, Pivot Rings

TRENCHLESS: Fan Belts, Lights On Light Kits, Wear Bars, Rollers, Tooling, Valve Seats, Track Guides, Track Chain, Track Sprockets, Drive Chuck, Earth Stakes, Water Hoses, Leaf Chain, Wear Blocks, Clamping Vise Parts, Packing Assemblies, Jaws, Water Swivels, Rod Loader Parts, Track Pads, Track Idlers, Rod

RUBBER TIRE: Bearings, End Rollers, Belts, Pins, Trench Cleaner (Crumber), Tires, Bucket, Brake Pads, Clutches, Track Sprockets, Sprockets, Chains, Bushings, Booms, Rubber Shielding, Bucket Teeth, Plow Blades, Rock Wheel Teeth, Augers, Track Idlers

PARTS WARRANTY:

Parts replaced in the warranty period will receive the balance of the first year New Industrial Equipment Limited Warranty, during the first (12) months or 1000 hours whichever comes first. Replacement parts after the original machine warranty, are warranted to be free from defects of material for ninety (90) days or the part will be repaired or replaced, without labor coverage for removal and reinstallation.

EXCLUSIONS OF WARRANTIES: EXCEPT FOR THE WARRANTIES EXPRESSLY AND SPECIFICALLY MADE HEREIN, VERMEER MAKES NO OTHER WARRANTIES, AND ANY POSSIBLE LIABILITY OF VERMEER HEREINUNDER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. VERMEER RESERVES THE RIGHT TO MODIFY, ALTER AND IMPROVE ANY PRODUCT WITHOUT INCURRING ANY OBLIGATION TO REPLACE ANY PRODUCT PREVIOUSLY SOLD WITH SUCH MODIFICATION. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME ANY ADDITIONAL OBLIGATION ON VERMEER'S BEHALF.

NO DEALER WARRANTY. The selling dealer makes no warranty of its own and the dealer has no authority to make any representation or promise on behalf of Vermeer or to modify the terms or limitations of this warranty in any way.

MANUFACTURED BY:

**Vermeer International BV
Nijverheidsstraat 20
4458 AV's-Heer Arendskerke
The Netherlands**

**Vermeer Manufacturing Company
1210 Vermeer Road East
Pella, Iowa 50219
USA**

VERMEER EQUIPMENT EXTENDED LIMITED WARRANTY RIDER BRUSH CHIPPER DRUM AND DRUM HOUSING

3,000 Hours / 3 Years*
(Parts only coverage during extended term)

VERMEER MANUFACTURING COMPANY (hereinafter “Vermeer”) agrees to extend only the parts coverage of the applicable Vermeer Industrial New Equipment Limited Warranty (the “Standard Limited Warranty”) for the Covered Components of the Specified Models of New Vermeer Industrial Equipment for the Extended Term, provided that the Equipment is operated and maintained in accordance with the directions and instructions set forth in the Operator’s and Maintenance Manual(s). All conditions, exclusions, and limitations of the Standard Limited Warranty apply.

- SPECIFIED MODEL:** **BC1000XL, Serial Number 7698 and above**
- COVERED COMPONENTS:** Drum housings, cutter drums, shafts, and ring feeder hubs (bearings may be covered if required for drum replacement).
- NON-COVERED COMPONENTS:** Bearings, knives, shear bar, and wear items (as specified on Vermeer New Industrial Equipment Limited Warranty).
- EXTENDED TERM*:** Three (3) full years from original retail sale date of the Equipment or 3,000 hours of machine operation, whichever occurs first. This warranty is extended to the original purchaser and subsequent owners.

NOTE: *Subject to future change Brush Chipper models introduced after August 1, 2006, will be covered as stated in this warranty rider.*

EXCEPT FOR THE STANDARD LIMITED WARRANTY AND THIS RIDER, VERMEER MAKES NO OTHER WARRANTIES, AND ANY POSSIBLE LIABILITY OF VERMEER HEREUNDER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

VERMEER EQUIPMENT EXTENDED LIMITED WARRANTY RIDER BRUSH CHIPPER DRUM AND DRUM HOUSING

2,000 Hours / 5 Years*
(Parts and labor coverage during extended term)

VERMEER MANUFACTURING COMPANY (hereinafter “Vermeer”) agrees to extend parts and labor coverage of the applicable Vermeer Industrial New Equipment Limited Warranty (the “Standard Limited Warranty”) for the Covered Components of the Specified Models of New Vermeer Industrial Equipment for the Extended Term, provided that the Equipment is operated and maintained in accordance with the directions and instructions set forth in the Operator’s and Maintenance Manual(s). All conditions, exclusions, and limitations of the Standard Limited Warranty apply.

SPECIFIED MODEL: **BC1000XL, Serial Number 101-7697**

COVERED COMPONENTS: Drum housings, cutter drums, shafts, and ring fedder hubs (bearings may be covered if required for drum replacement).

NON-COVERED COMPONENTS: Bearings, knives, shear bar, and wear items (as specified on Vermeer New Industrial Equipment Limited Warranty).

EXTENDED TERM*: Five (5) full years from original retail sale date of the Equipment or 2,000 hours of machine operation, whichever occurs first. This warranty is extended to the original purchaser and subsequent owners.

EXCEPT FOR THE STANDARD LIMITED WARRANTY AND THIS RIDER, VERMEER MAKES NO OTHER WARRANTIES, AND ANY POSSIBLE LIABILITY OF VERMEER HEREUNDER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Receiving and Delivery Report

DEALER PREP

Check or perform the following:

Engine

- Check oil level of the engine.
- Check battery electrolyte level and charge.
- Check condition of air cleaner.
- Check coolant level and antifreeze concentration.
- Check engine for proper operation.

Hydraulics

- Check hydraulic fluid level.
- Check control levers for proper operation.
- Check all hydraulic components for leaks or damage.
- Check *Lower Feed Stop Bar* system for proper operation.
- Check *Upper Feed Control Bar* for proper operation.

General

- Check machine for shortage or damage in transit.
- Check installation and condition of all shields.
- Check machine for proper lubrication.
- Check condition of all safety signs and operating decals.
- Check all phases of operation.

- ___ Check for loose hardware.
- ___ Check wheel lug nuts torque (refer to [Specifications](#) section in the [Maintenance Manual](#).)
- ___ Check air pressure of tires (refer to [Specifications](#) section in the [Maintenance Manual](#).)
- ___ Check operation of the brakes.
- ___ Check operation of breakaway system.
- ___ Check operation of highway lights.
- ___ Check that towing hitch is properly attached to machine.
- ___ Check mechanical surge brake operation if so equipped.
- ___ Check drive belts for proper tension.
- ___ Check *Cutter Drum Clutch/Throttle Lever* for proper function.
- ___ Check torque on cutter knife bolts (refer to [Specifications Section](#) in the [Maintenance Manual](#).)
- ___ Check operation of SmartFeed system.

DELIVERY

Check and perform the following with the customer:

Brush Chipper

- ___ Review all sections of the [Operator's Manual](#).
- ___ Grease or oil all lubrication points.

Review of Operation

Review and demonstrate with the customer the various aspects of brush chipper operation:

- ___ overall explanation of how the brush chipper works
- ___ brush chipper safety
- ___ preparing the brush chipper for operation

DEALER/CUSTOMER INFORMATION

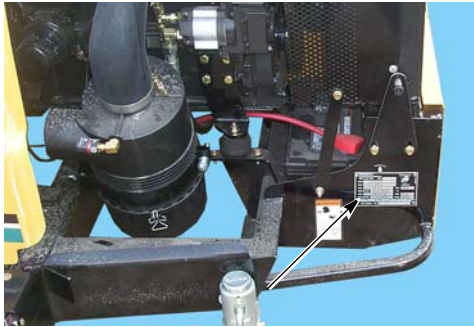
<i>dealer:</i>		<i>owner:</i>	
<i>address:</i>		<i>address:</i>	
<i>city:</i>		<i>city:</i>	
<i>state / province:</i>		<i>state / province:</i>	
<i>zip / postal code:</i>		<i>zip / postal code:</i>	
<i>country:</i>		<i>country:</i>	

MACHINE IDENTIFICATION NUMBERS - RECORD

Machine Model Number _____

Machine Serial Number _____

NOTE: Identification tag located under hood.



ENGINE IDENTIFICATION NUMBERS - RECORD

Engine Model Number _____

Engine Serial Number _____



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Section 10: Safety Messages

General safety messages appear in this Safety Messages section. Specific safety messages are located in appropriate sections of the manual where a potential hazard may occur if the instructions or procedures are not followed.

A signal word “**DANGER**”, “**WARNING**”, or “**CAUTION**” is used with the safety alert symbol.

Safety signs with signal word “**DANGER**”, “**WARNING**”, or “**CAUTION**” are located near specific hazards.

DANGER Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

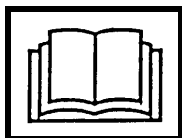
WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

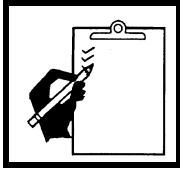
SAFETY SYMBOL EXPLANATION



This is the safety alert symbol. This symbol is used in combination with an exclamation mark or other symbols to alert you to the potential for bodily injury or death.



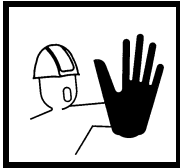
WARNING: Read Operator's Manual and safety signs before operating machine.



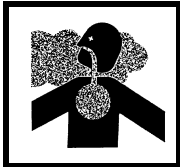
WARNING: Check machine before operating. Machine must be in good operating condition and all safety equipment installed and functioning properly.



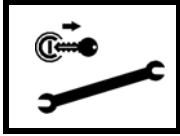
WARNING: Wear personal protective equipment. Dress properly. Refer to [Preparing the Brush Chipper and Work Area, page 40-1](#).



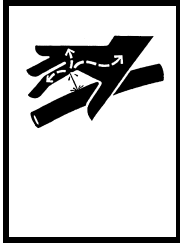
WARNING: Keep spectators away.



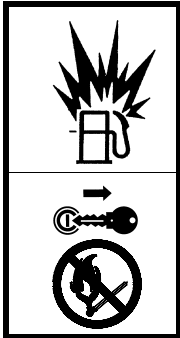
WARNING: Engine exhaust can asphyxiate. Operate only outdoors.



WARNING: Use Shutdown Procedure before servicing, cleaning, repairing or transporting machine. Refer to [Shutdown Procedure, page 22-1](#), for instructions.

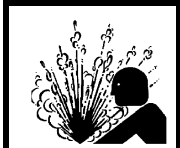


WARNING: Pressurized fluid can penetrate body tissue and result in serious injury or death. Leaks can be invisible. Keep away from any suspected leak. Relieve pressure in the hydraulic system before searching for leaks, disconnecting hoses, or performing work on the system. If you must pressurize the system to find a suspected leak, use an object such as a piece of wood or cardboard rather than your hands. When loosening a fitting where some residual pressure may exist, slowly loosen the fitting until oil begins to leak. Wait for leaking to stop before disconnecting the fitting. Fluid injected under the skin must be removed immediately by a surgeon familiar with this type of injury.

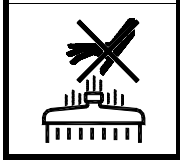


WARNING: Fuel and fumes can explode and burn.

Shut off engine before refueling. No flame. No smoking.



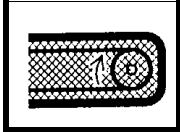
WARNING: Hot fluid under pressure can scald.



Allow engine to cool before opening radiator cap.



WARNING: Moving parts can crush fingers.



Close all shields before starting.



WARNING: Failure to follow any of the preceding safety instructions or those that follow within this manual, could result in serious injury or death. This machine is to be used only for those purposes for which it was intended as explained in this Operator's Manual.

Section 20: Controls

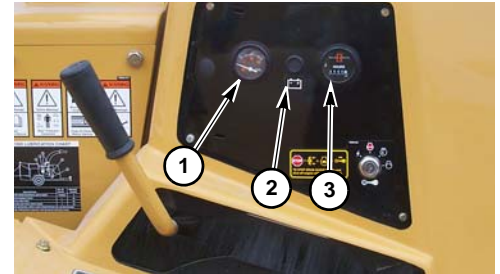
ENGINE MONITORS - BASIC

(1) **Fuel Gauge**

(2) **Alternator Warning Light**

On alternator not charging

(3) **Hourmeter**



ENGINE MONITORS - DELUXE GAUGE PANEL (OPTION)

- (1) **Water Temperature Gauge**
- (2) **Air Filter Restriction Indicator**
- (3) **Voltmeter**
- (4) **Oil Pressure Gauge**
- (5) **Tachometer/Hourmeter**
- (6) **Fuel Gauge**



IGNITION SWITCH

(1) Ignition Switch

Counterclockwise..... test indicator lights

Vertical position..... engine off

1st position clockwise..... engine on

2nd position clockwise..... engine start



THROTTLE/CUTTER ENGAGE

(1) Throttle Lever/Clutch Engage

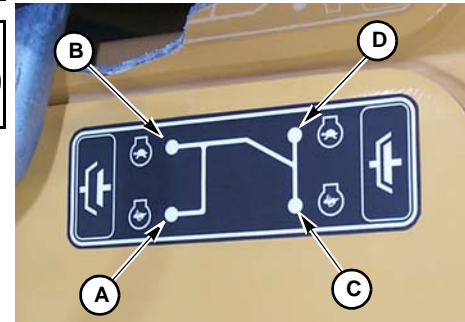
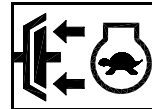
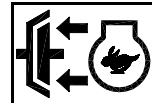
(A) Left, toward operatordisengaged, high RPM

(B) Left, away from operator. disengaged, low RPM

(C) Right, toward operator (chipping position) engaged, high RPM

(D) Right, away from operator engaged, low RPM

Lever automatically adjusts engine speed as the cutter drum is engaged.



FEED ROLLER CONTROLS

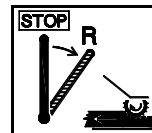
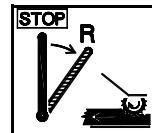
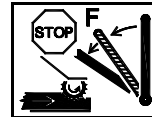
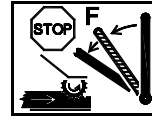
(1) Upper Feed Control Bar

Rear position feed roller emergency STOP

Second position from rear. feed roller FORWARD

Top/third position from rear feed roller STOP

Forward position feed roller REVERSE



NOTE: *Upper Feed Control Bar* is spring-returned from REVERSE to STOP position and must be held to operate feed roller in REVERSE.

NOTE: Feed roller will not move unless:

- cutter drum is engaged
- engine speed is at high RPM
- *Lower Feed Stop Bar* is reset (rear amber warning light **not** blinking)
- *Upper Feed Control Bar* is in forward or reverse feeding position, or *Hold-to-Run Button* is pressed.

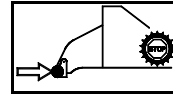
NOTE: SmartFeed control is always ON, and is activated automatically.

NOTE: Feed roller will move in REVERSE at any engine speed and when light blinks.

(2) Lower Feed Stop Bar

Bar pressed feed roller stops

*To reset: Briefly press *Hold-to-Run Button* (see **(3)** on next page).*



(3) Hold-to-Run Button (Located on both sides of feed table)

Press briefly feed roller operates
and *Lower Feed Stop Bar* is ignored for one second.



Press and hold feed roller operates
for a maximum of 30 seconds regardless of position
of *Upper Feed Control Bar (1)* and *Lower Feed
Stop Bar (2)*. After 30 seconds, feed roller stops.

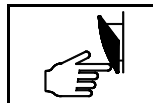
**(4) Lower Feed Stop Bar Sensitivity Switch (BC1000XL
Units Only)**

Press top Normal sensitivity



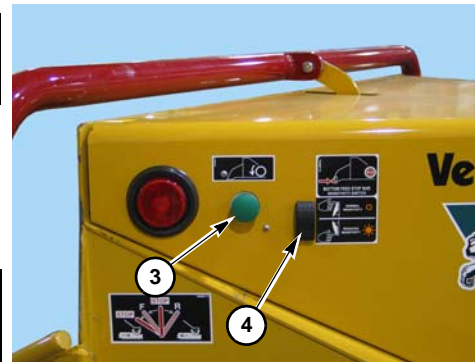
NOTE: Feed roller stops when stop bar is pushed a shorter distance

Press bottom Reduced sensitivity



NOTE: Feed roller stops when stop bar is pushed a farther distance

NOTE: Each time engine key is turned OFF, the lower feed stop bar system
defaults to the “Normal Sensitivity” selection.



(5) **Rear Warning Light - center**

BC1000XL Units Only:

Normal sensitivity setting selected warning light off

Reduced sensitivity setting selected warning light on

BC1000XL and BC1000XL EU Units:

- Flashes quickly when feed roller needs to be restarted after pressing *Lower Feed Stop Bar* or pulling *Upper Feed Control Bar*.
- Flashes slowly if engine shuts down due to high water temperature or low oil pressure.

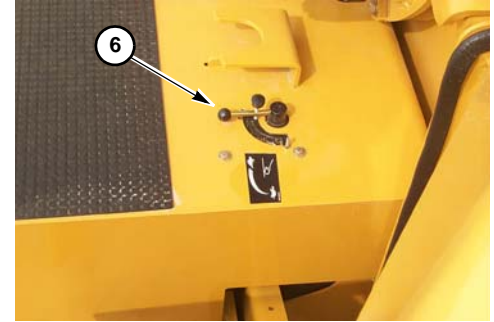
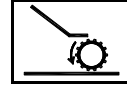
NOTE: When the *Rear Warning Light* flashes quickly, the *Hold-to-Run Button (3)* must be pushed to reset stop system and stop warning light from flashing.



(6) Feed Roller Speed

Clockwise increase feed roller speed

Counterclockwise decrease feed roller speed



DISCHARGE CHUTE CONTROLS

(1) Chute Rotation Lever

Chute rotation is self-locking.

Rotate handle clockwise chute rotates left

Rotate handle counterclockwise chute rotates right

(2) Chute Deflector

Controls the distance chipped material is discharged.

Up farther

Down closer

(3) Chute Deflector Lock - Manual

Loosen to change deflector position.

(4) Chute Deflector Adjustment Handle (Remote Control Option)

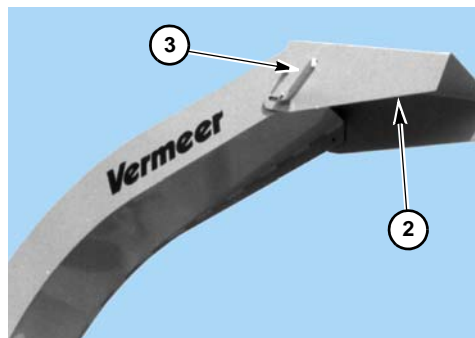
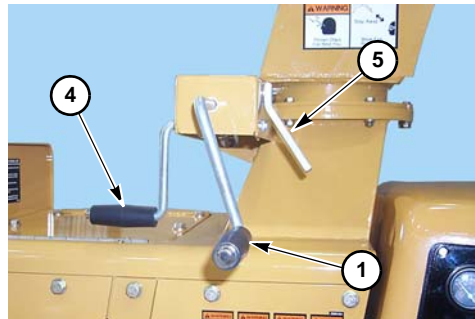
Turn crank clockwise deflector up

Turn crank counterclockwise deflector down

(5) Chute Deflector Lock (Remote Control) (Option)

Loosen (counterclockwise) unlock

Tighten (clockwise) lock



Section 21: Starting Procedure

STARTING THE ENGINE

Step 1: Place *Cutter Engage/Throttle Lever* in DISENGAGED/LOW RPM.

Step 2: Place *Upper Feed Control Bar* in top STOP position.

Step 3: Turn key clockwise to ON to turn on the electrical system.
With the basic gauge package, the alternator warning light will glow when the key is in this position.

Step 4: Turn key fully clockwise to start the engine. Release key once the engine starts.

IMPORTANT: Never run the starter motor for more than 30 seconds at a time. Allow starter motor to cool 1 minute between attempts.

Step 5: Allow engine to warm up for 3–5 minutes before engaging the cutter.

IMPORTANT: Do not idle engine for more than 10 minutes. The resulting low temperatures in the combustion chamber will not allow fuel to burn completely and can cause engine damage.

COLD WEATHER STARTING

Engine

Before operating in cold weather (below 32°F (0°C)), refer to the Engine Operation Manual for recommended engine oil, fuel, and starting procedures.

Hydraulic Fluid

In cold weather, take more time to warm up the hydraulic fluid. After the engine is warm, let it run for a minimum of five more minutes at low RPM before operating any controls.

NOTE: Slow down engine if the hydraulic pump squeals due to insufficient oil.

JUMP-STARTING

Battery Explosion - Avoid



WARNING: Battery fumes are flammable and can explode. Keep all burning materials away from battery. Battery explosion can blind. Acid can blind and burn. Tools and cable clamps can make sparks.

Do not smoke. Shield eyes and face. Read instructions.

Do not jump-start or charge a battery that is frozen or low on electrolyte.

Avoid explosion hazard. If equipped with battery caps, they must be in place and tight.

Do not allow vehicle used to jump-start to be in contact with the disabled machine. Vehicles in contact have a ground connection which allows a spark to occur at the battery when the positive jumper cable is connected or removed. If equipped with battery caps, they must be in place and tight to reduce risk of battery explosion.

IMPORTANT: Use only a 12-volt system for jump-starting. Do not allow vehicles to touch.

Battery Burns - Avoid

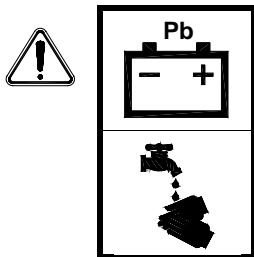
Battery contains sulfuric acid which can cause severe burns. Avoid contact with eyes, skin, and clothing.

In case of acid contact:

External: Flush with plenty of water. If eyes have been exposed, flush with water for 15 minutes and get prompt medical attention.

Internal: Drink large quantities of water or milk, follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.

Jump-Starting Procedure



WARNING: Battery post, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm.

Wash hands after handling.

IMPORTANT: Review battery service safety guidelines before jump-starting machine (refer to battery maintenance instructions in the *"Maintenance - 250 Service Hours"* section of the *Maintenance Manual*).

Step 1: Turn ignition switch to OFF.

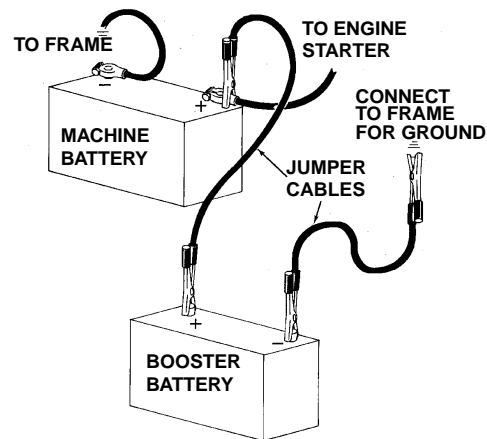
Step 2: Connect jumper cables in the following order:

- Red to discharged battery POSITIVE (+) terminal.
- Red to booster battery POSITIVE (+) terminal.
- Black to booster battery NEGATIVE (-) terminal.
- Black to frame of machine with the discharged battery. Make connection away from battery, hydraulic lines, and moving parts.

NOTE: To avoid sparks near the battery, always disconnect black jumper cable from the booster battery before making any adjustment to the red jumper cable.

Step 3: Start engine.

Step 4: Remove cables in REVERSE order and install the red cover over the positive cable clamp on the battery.



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Section 22: Shutdown Procedure

STOPPING THE MACHINE

IMPORTANT: For your safety and the safety of others, use the shutdown procedure before working on the machine for any reason, including servicing, cleaning, unlogging, inspecting, or transporting the chipper.

A variation of this procedure may be used if so instructed within this manual, or if an emergency requires it.

Step 1: Return *Upper Feed Control Bar* to top STOP position.

Step 2: Place *Cutter Engage/Throttle Lever* in the ENGAGED/LOW RPM position.

IMPORTANT: Whenever practical and consistent with good safety practice, run engine without load for a few minutes before shutting it off. This allows engine temperatures to decrease and equalize, which will increase engine life.

Step 3: Wait for the cutter drum to slow.

Step 4: Place *Cutter Engage/Throttle Lever* in the DISENGAGED/LOW RPM position.

Step 5: Turn ignition key to OFF position.

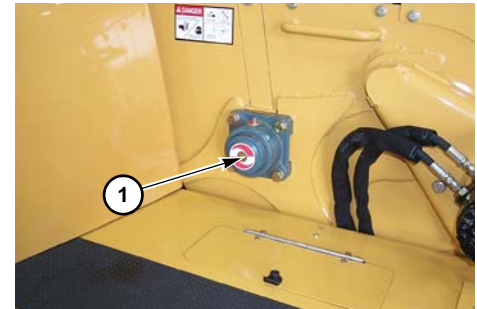
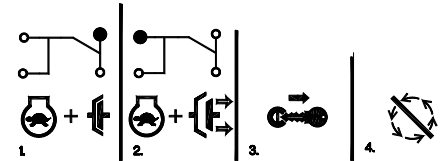
Step 6: Wait for the cutter drum and belt to stop.

NOTE: Cutter drum rotation can be checked by looking at the end of the shaft (1) on the left side of the cutter wheel housing.

IMPORTANT: The cutter drum will continue to turn for a short time after the engine has stopped.

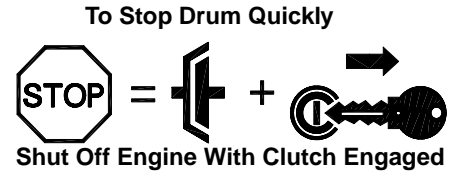
Step 7: Remove ignition key.

Step 8: Close and latch feed table.



Quick Stop Procedure

- Step 1: Turn ignition to OFF position while cutter drum clutch is still engaged.
- Step 2: Wait for cutter drum and belt to stop.
- Step 3: Fully disengage cutter drum.



Section 30: Transporting the Brush Chipper

REPORTING SAFETY DEFECTS

If you believe that your vehicle (brush chipper) has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Vermeer Mfg. Co.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer or Vermeer Mfg. Co.

To contact NHTSA, you may either call the DOT Auto Safety Hotline toll-free at 1-888-DASH-2DOT (1-888-327-4236), or file a report on-line at: www.nhtsa.dot.gov/hotline/, or write to: NHTSA, U.S. Department of Transportation, 400 - 7th St. SW, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

EQUIPPING THE TOWING VEHICLE

IMPORTANT: (BC1000XL Only) The towing vehicle must be equipped with a brake controller that automatically applies the towed machine's electric brakes.

(BC1000XL Only) Do not use a brake controller that is purely a manually operated controller. If your towing vehicle is equipped with a manually operated controller, remove it and install one that can be applied both automatically and manually.

It is recommended that the towing vehicle be equipped with mud flaps to reduce damage to the front of the towed machine from road debris.

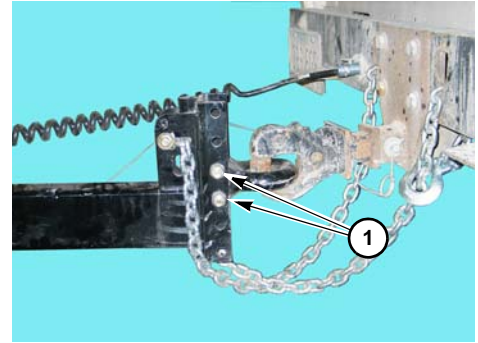
HITCH HEIGHT - ADJUST (BC1000XL ONLY)

Before attaching the machine to the towing vehicle, check the height of the hitch on the towing vehicle to the hitch on the machine. The height of the hitches needs to be approximately the same to keep the machine level during transport.

To adjust hitch:

- Step 1:** Remove two hitch bolts (1).
- Step 2:** Raise or lower hitch to match towing vehicle height.
- Step 3:** Replace the two hitch bolts and tighten. Torque to 80 ft-lb (108 Nm).

NOTE: There are three types of hitches available: clevis, ball, and pintle.



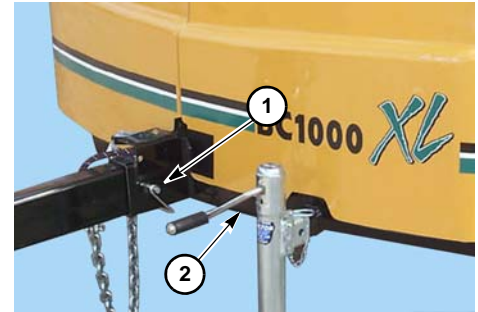
TONGUE LENGTH - ADJUST (BC1000XL ONLY)

The tongue can be lengthened or shortened to fit the towing vehicle. There are three positions that allow a 24" (61 cm) total variation in tongue length.

Use the following steps to adjust the tongue length.

NOTE: Tongue is adjusted most easily with hitch detached from towing vehicle.

- Step 1:** Support machine with the jack.
- Step 2:** Remove two tongue adjustment pins (1). Second pin is located beneath shielding on inner side of frame (2).
- Step 3:** Slide tongue to the new set of holes in tongue. Align holes in tongue with holes in frame.
- Step 4:** Insert tongue adjustment pin and secure with snap lock wire.



ATTACH TO TOWING VEHICLE (BC1000XL)



WARNING: Safety towing chains may uncouple from towing vehicle if chain hook latches are damaged or missing. Do not tow vehicle with damaged or missing hook latches.

Step 1: Securely attach machine hitch to towing vehicle. Refer to instructions for specific hitch type.

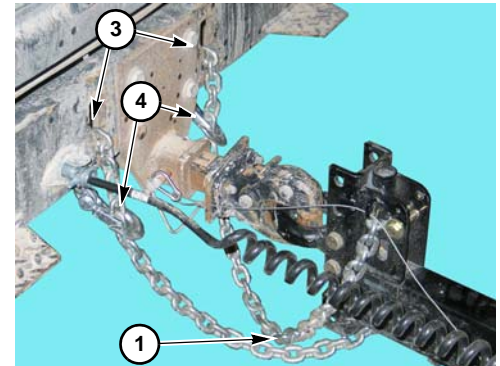
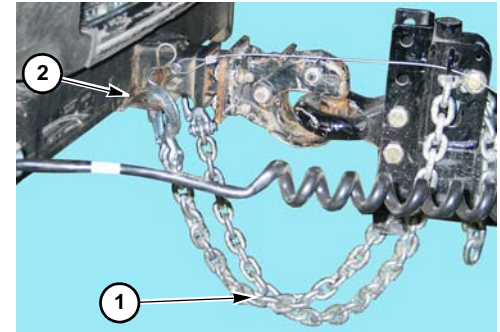
Step 2: Cross safety chains **(1)** under the tongue and use one of the following methods to attach chains to the towing vehicle:

a. Secure each chain hook to an appropriate ring or loop **(2)** on towing vehicle hitch,

Or:

b. Loop each chain **(3)** around towing vehicle frame or hitch cross member and clip the chain hook **(4)** back onto the chain. Ensure the spring loaded latch snaps closed around the chain and rests snugly against the slip hook.

NOTE: Keep chains as short as possible, but leave enough slack to turn corners.



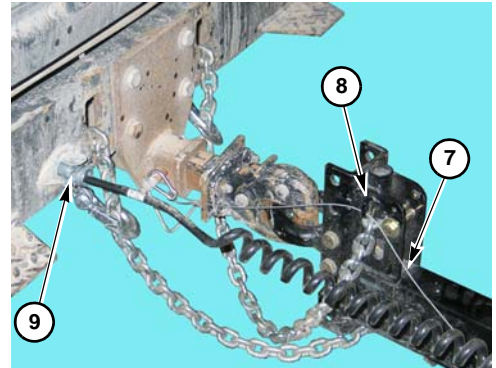
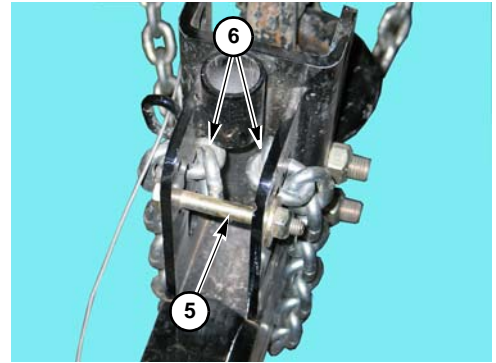
To adjust chain length:

- a. Remove bolt (5).
- b. Slide chain loops through slots (6) to increase or decrease chain lengths.
- c. Install bolt (5) to lock chain loops in place.

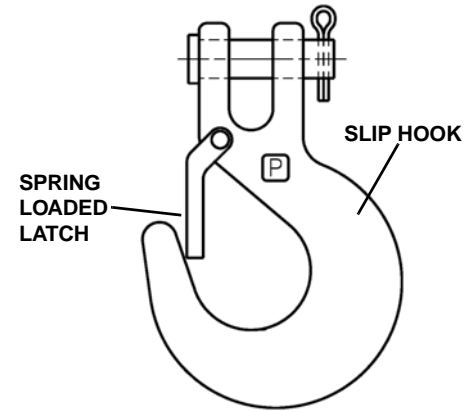
Step 3: Route breakaway cable (7) through loop (8) and attach to towing vehicle bumper or frame.

IMPORTANT: The breakaway cable length should be adjusted so the breakaway system applies the brakes only after both the hitch and the safety towing chains have disconnected.

Step 4: Attach electrical connector (9) to the towing vehicle. Check that highway lights and electric brakes are functioning properly.



IMPORTANT: Inspect each safety chain slip hook latch system every time the machine is attached to a towing vehicle. If the latch is damaged, missing, or does not snap closed to the hook, the slip hook may not remain coupled. Refer to “*Maintenance as Required*” section, in the *Maintenance Manual* for instructions on replacing damaged or missing safety towing chains and hooks.



Step 5: Fully raise jack (10), rotate 90° and secure with attachment pin.



Operating a Ball Coupler Hitch



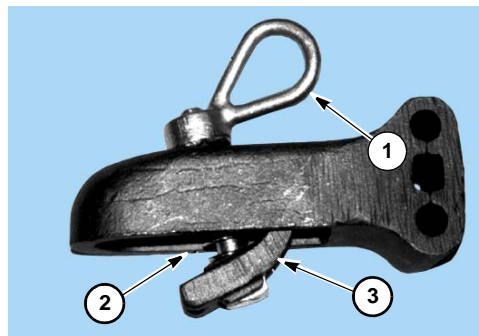
WARNING: When using a ball coupler hitch, the clamping lip must be tightened against the ball hitch. Failing to tighten clamping lip can allow the towed machine to become unhitched from the towing vehicle.



WARNING: When using a 1-7/8" or 2" coupler hitch, the hitch ball diameter must be rated for the size used. Using a hitch ball that is smaller can allow the towed machine to become unhitched from the towing vehicle.

- Step 1:** Before using, inspect hitch components. They should be in proper working order and correctly assembled. Refer to *"Maintenance - 500 Service Hours or Yearly"* section in the *Maintenance Manual* for inspection information.
- Step 2:** Loosen loop nut (1) to allow innerspring (2) to lower clamping lip (3).
- Step 3:** Align towing vehicle hitch ball beneath coupler socket. Lower coupler socket over hitch ball.
- Step 4:** Tighten loop nut while ensuring square head of the bolt is in the square cavity of the clamping lip.
- Step 5:** While tightening, move coupler up and down on the ball to ensure that it is snug.

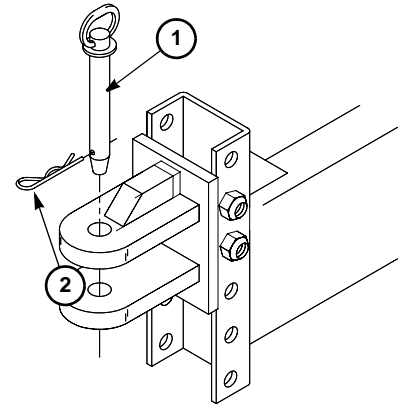
IMPORTANT: Do not use a wrench or bar to tighten the coupler; hand tighten only. Overtightening strains and wears the coupler parts. It may also cause the coupler to seize on the ball and cause the ball nut to come loose.



Hitch - Clevis

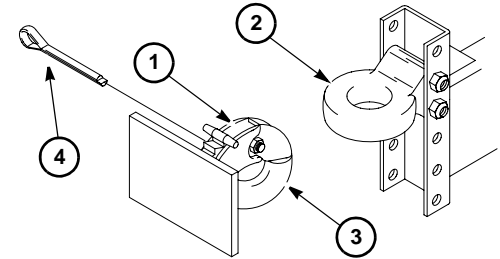
When using a clevis hitch, use a hitch pin which can be locked in place (i.e., hitch pin with a hairpin cotter through a hole in the end of the pin).

- (1) **Hitch Pin** - Hitch pin size must match hole size in clevis hitch ears.
- (2) **Hairpin Cotter**



Hitch - Pintle

- Step 1: Open pintle (1).
- Step 2: Back up towing vehicle until pintle is centered under pintle ring (2) of the hitch.
- Step 3: Lower tongue until the pintle ring is seated in the pintle hook (3).
- Step 4: Latch pintle and lock with cotter pin (4).



BC1000XL EU - Attach to Towing Vehicle

Step 1: Attach to vehicle hitch.

- a. Squeeze on bottom side of handle **(1)** and lift to unlock the hitch.
- b. After hitch is placed over the ball on the towing vehicle, push down on the locking handle **(1)** until hitch locks into place.

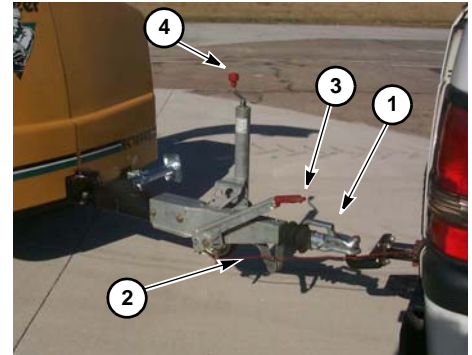
Step 2: Attach breakaway cable **(2)** to towing vehicle bumper or frame.

IMPORTANT: Adjust cable length so the breakaway system is triggered only after the machine has disconnected from the hitch.

Step 3: Connect electrical connector to receptacle on towing vehicle. Check that highway lights function correctly.

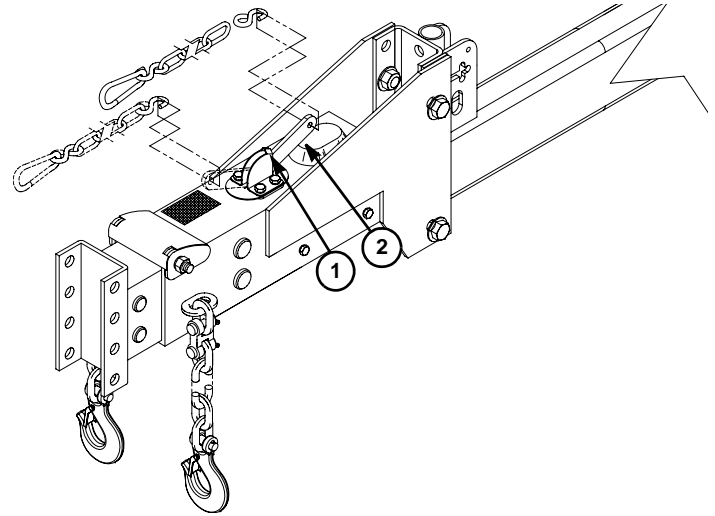
Step 4: Press button on end of *Park Brake Lever* **(3)** and move down to release park brake.

Step 5: Raise jack **(4)**.



BREAKAWAY ON HYDRAULIC SURGE BRAKE (OPTION) - RESET

- Step 1: Pry apart spring clips (1).
- Step 2: Return lever (2) to reset position.



MACHINE - CLEAN BEFORE TRANSPORTING

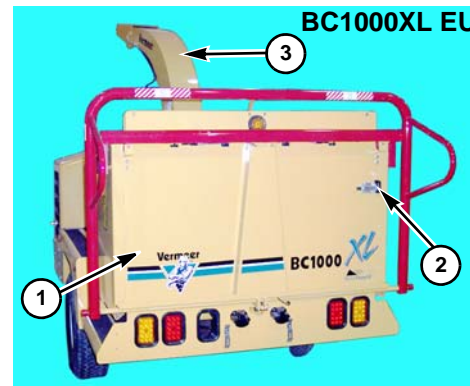
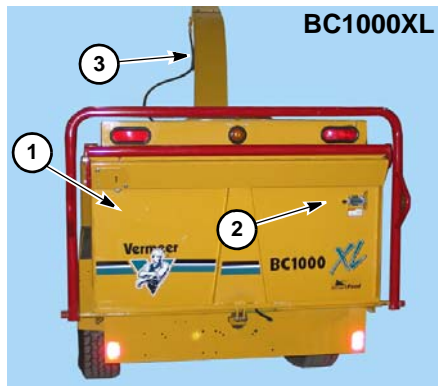
IMPORTANT: Machine controls and electrical/electronic devices are not rated to withstand high pressure water and high temperature power washers. Water intrusion will likely cause malfunction or damage to any devices hit directly by the water spray. Keep pressure washer stream away from machine controls and electrical/electronic devices. Compressed air can also push moisture through some connector and component seals. Do not point air nozzle directly at seal areas.

Ensure feed table is empty. Clean machine to keep debris off road and from striking other vehicles during transport.

PREPARE FOR TRANSPORT

Step 1: Fold up feed table (1) and secure latch (2).

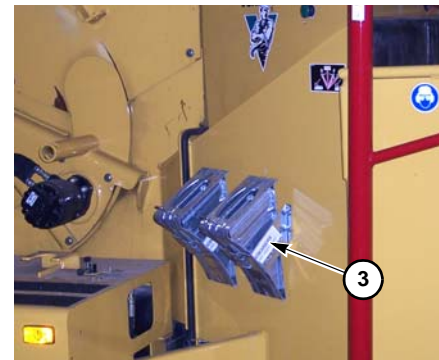
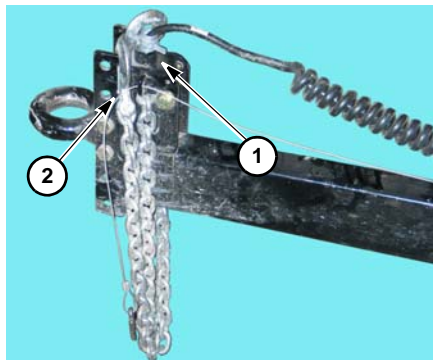
Step 2: Rotate discharge chute (3) forward.



DETACH FROM TOWING VEHICLE

Park machine on level ground and chock wheels. Use jack to support tongue. Store electrical connector (1) and safety chains (2) on end of tongue.

On BC1000XL EU machines, engage *Park Brake Lever* and use blocks (3) provided to chock wheels.



Section 40: Preparing the Brush Chipper and Work Area

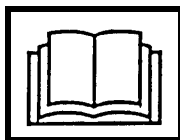
INTENDED USE

The Vermeer BC1000XL Brush Chipper is designed solely for use in chipping organic material such as wood, bark, limbs, brush, and undergrowth.

Always use the machine in accordance with the instructions contained in this Operator's Manual, safety signs on the machine, and other material provided by Vermeer Mfg. Co or Vermeer International BV.

Proper maintenance and repair is essential for safety, and for efficient operation of the machine. Do not use the machine if it is not in suitable operating condition.

OPERATOR QUALIFICATIONS



WARNING: Read Operator's Manual and safety signs before operating machine.

Allow only responsible, properly instructed individuals to operate machine.

Become familiar with the controls, operation and use of the machine under the supervision of a trained and experienced operator.

The operator must be familiar with the workplace's safety rules and regulations, and must be mentally and physically capable of operating the machine safely.

PERSONAL PROTECTION



WARNING: Wear personal protective equipment. Wear close-fitting clothing and confine long hair. Avoid jewelry, such as rings, wristwatches, necklaces, or bracelets.

Operating the machine will require you to wear protective equipment. You should always wear a hard hat, safety shoes, loose-fitting gloves with narrow cuffs (gauntlet-type gloves with wide cuffs are not permitted), hearing protectors, and eye protection. If working near traffic, wear reflective clothing.

Hearing protection is recommended when operating the machine. Hearing protection devices provide differing levels of sound reduction. It is important to select a device that is adequate and appropriate for your specific work environment. Actual sound levels may vary widely, depending on your working conditions. To determine the level of hearing protection your work environment requires, enlist the help of your local environmental noise specialist.

Eye protection must consist of wraparound safety glasses or goggles.

Other workers in immediate area must also wear the above listed required protective equipment.

Wear close-fitting clothing and confine long hair.

Avoid wearing jewelry, such as rings, wristwatches, necklaces, or bracelets.

Sound Levels

Sound pressure and sound power levels were determined according to test procedures specified in ISO 6394.

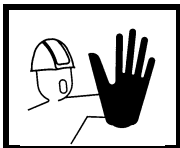
Equivalent Continuous A-Weighted Sound Pressure Level at Operator's Ear as specified by ISO 11201:
LAeq = 95 dB(A).

Exterior Sound Power Level as determined by ISO 3744:
LwA = 113 dB(A).

NOTE: The stated sound levels are representative for a given operating condition. Operating conditions may vary at each job site. The actual sound levels for your application and operating conditions may be different.

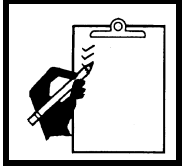


PREPARE THE AREA



WARNING: Keep all spectators and other workers away from the machine and work area while in operation.

PREPARE THE BRUSH CHIPPER



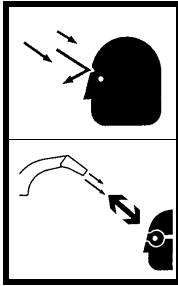
WARNING: Check machine before operating. Machine must be in good operating condition and all safety equipment installed and functioning properly.

- Survey area around the machine for persons or obstacles before positioning machine on the job site.
- Set up machine in an area free of obstructions that could interfere with the safe and efficient movement of the operator. Never set up beneath a tree being pruned or removed.
- Position machine so working surface of feed table is a minimum of 24" (61 cm) above ground when feeding material.
- During typical operation, the brush chipper must stay hitched to the towing vehicle.
- The brush chipper may be operated while unattached to the towing vehicle if:
 - Machine is parked on a level surface.
 - Tongue is supported by blocking.
 - Wheels are securely chocked.
- If operating along a road, properly warn and divert motor vehicle and pedestrian traffic. Use all necessary signs, cones, and flag persons needed for the work situation.

Clean Flammable Materials from Machine

Prevent fires by keeping engine compartment, battery, hydraulic lines, fuel tank and operator's station clean of accumulated trash, grease, and debris.

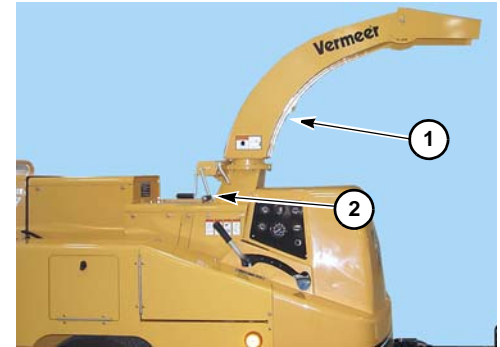
Discharge Chute



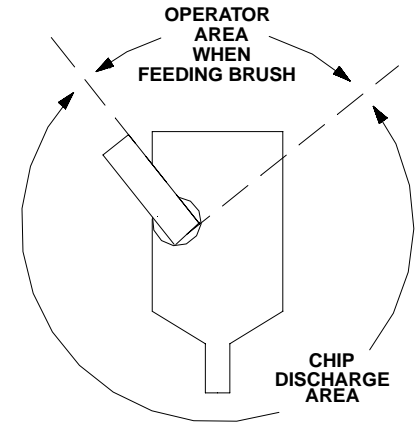
WARNING: Thrown objects can blind you.

Keep everyone away from discharge area while cutter disc is turning. Direct discharge chute away from people. Wear eye protection.

- Step 1:** Rotate discharge chute (1) to the direction you want to deposit the chipped material by turning the rotation lever (2).

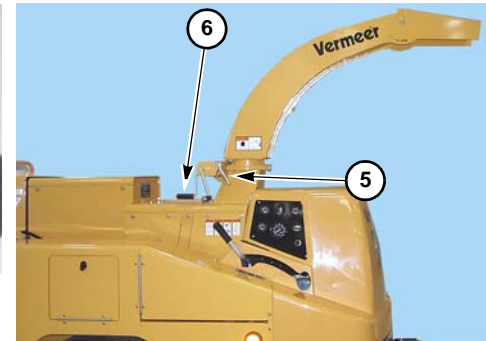
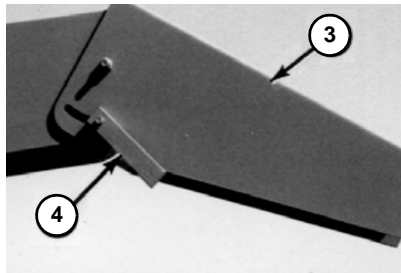


NOTE: The discharge chute is equipped with a stop to prevent discharging material over the feed table area. The discharge chute can be rotated 270° to direct the chips to the desired position.



Step 2: To adjust discharge distance, raise or lower discharge chute deflector (3).

- **Standard deflector**
Loosen locking handle (4).
Adjust deflector height.
Tighten locking handle to secure the adjusted deflector.
- **Remote deflector control (option)**
Loosen lock (5) and turn crank (6).
Tighten lock handle to secure the adjusted deflector.

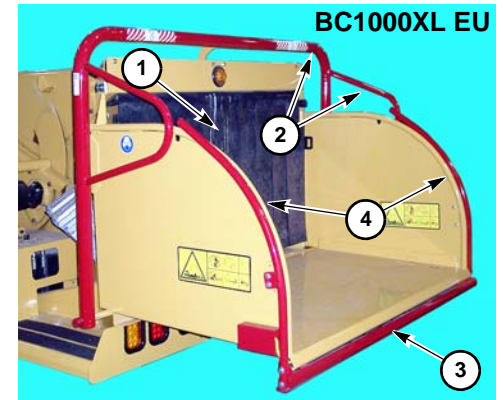


Feed Table

Unlatch feed table and lower to operating position. The feed table provides an important measure of safety by increasing the distance between the feed roller (1) and the operator. **Never** operate brush chipper with the feed table removed.

Feed Control Bars - Check

The brush chipper is equipped with an *Upper Feed Control Bar* (2) located across the top and sides of the feed table, and a *Lower Feed Stop Bar* (3) along the bottom of the feed table. The BC1000XL EU also has the *Lower Feed Stop Bar extend* (4) along both sides of the feed table. Do not operate brush chipper unless the control bars are installed and operating properly.



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Section 50: Operating the Brush Chipper

CUTTER SHAFT - CHECK

Follow [Starting Procedure, page 21-1](#), to start engine. Check cutter drum shaft end (1) to see that the cutter drum does not turn while the *Cutter Engage/Throttle Lever* is in the DISENGAGED/LOW RPM position. If adjustment is necessary, refer to the [Maintenance - 50 Service Hours or Weekly](#) section in the [Maintenance Manual](#) for instructions.



CUTTER DRUM - ENGAGE

After engine has warmed up, grip *Cutter Engage/Throttle Lever* (1) firmly and move it slowly to the ENGAGED/HIGH RPM position.



FEED ROLLER OPERATION



DANGER: Limbs can snag clothing. Roller or blades can grab and pull you in faster than you can let go of limb. Cutting injury or death will result.



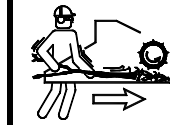
Feed material only from side of feed table.



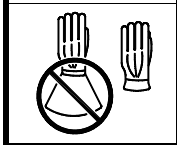
Never climb onto feed table.



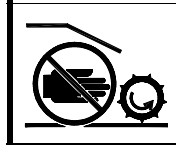
Feed base of limb or branch first.



Use wood object to push short material.



Wear gloves with narrow tight-fitting cuffs.



Keep away from rotating feed roller and blades.



WARNING: Feed roller may start unexpectedly with a small increase in engine speed. Place *Upper Feed Control Bar* in Center Stop and stop engine before working on or near feed roller for any reason including cleaning, servicing and unlogging feed intake area.

With SmartFeed control operation, the feed roller will stop feeding material when engine RPM drops below preset speeds, and will automatically restart when engine speed increases.

IMPORTANT: Proper operation of the *Upper Feed Control Bar* and *Lower Feed Stop Bar* should be checked every 10 hours of operation or daily. Refer to the [Maintenance Manual](#) for adjustment instructions.

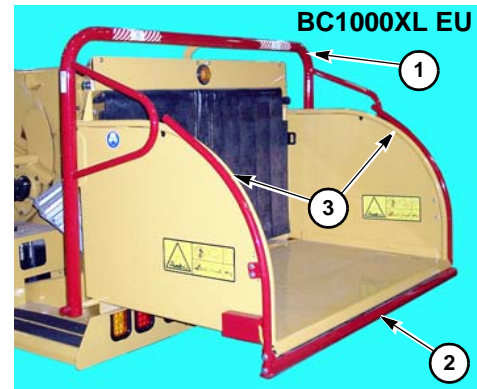
Upper Feed Control Bar

The *Upper Feed Control Bar* (1) provides a means for the operator to quickly stop feed roller as well as selecting forward or reverse operation.

Lower Feed Stop Bar and Side Feed Stop Bars

The *Lower Feed Stop Bar* system (2) and *Side Feed Stop Bars* (3) (BC1000XL European only) provide a means for the operator to quickly stop the feed roller if snagged by a branch and pulled toward the machine. This system is intended for your safety and must be maintained in good operating condition. Do not operate the machine if the *Lower Feed Stop Bar* or *Side Feed Stop Bars* are not functioning properly.

Stopping the feed roller is accomplished by bumping the *Lower Feed Stop Bar* or *Side Feed Stop Bars*. The *Feed Stop Bars* are strategically located to make it possible for an operator to strike the bars and shut off the feed either intentionally or automatically in an emergency situation. If the operator does not strike the bar, the feed will not stop. It is therefore very important to follow all safety instructions for feeding material into the chipper.



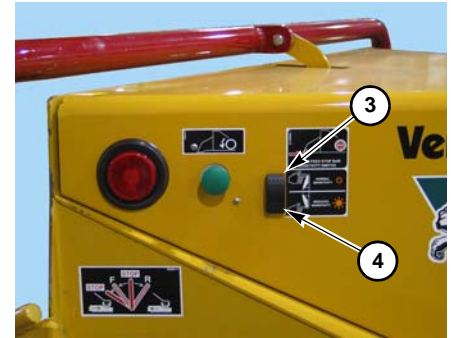
Sensitivity Levels - BC1000XL Only

The *Lower Feed Stop Bar* has two levels of sensitivity. When the NORMAL setting (top of the *Sensitivity Switch*) is selected (3), the stop bar is depressed a shorter distance before the feed roller stops. When the REDUCED setting (bottom of the *Sensitivity Switch*) is selected (4), the stop bar is depressed farther before feed roller stops.

The amber warning light (5) on the rear of the machine turns on when the REDUCED setting of the *Sensitivity Switch* is selected.

Each time the engine key is turned OFF, the lower feed stop bar system defaults to the NORMAL setting.

IMPORTANT: The NORMAL sensitivity setting provides the most protection for the operator since a leg is more likely to strike the bar and shut off feed in an emergency. Use NORMAL sensitivity setting whenever job site conditions permit. If the size and shape of limbs cause branches to strike the bar, resulting in an unacceptable frequency of feed stops, the REDUCED sensitivity setting may be temporarily selected. When these difficult conditions have passed, select the NORMAL setting to continue chipping.



Feed Roller - Engage

Start feed roller:

- Push *Upper Feed Control Bar (1)* to FORWARD feeding position.
- Press *Hold-to-Run Button (2)*.
 - Pressing it briefly causes feed roller to operate and the *Lower Feed Stop Bar* to be ignored for one second.
 - Holding it causes feed roller to operate for up to 30 seconds regardless of position of *Upper Feed Control Bar* and *Lower Feed Stop Bar*. After 30 seconds, feed roller stops, and can be reset by releasing the *Hold-to-Run Button* and pressing it again.



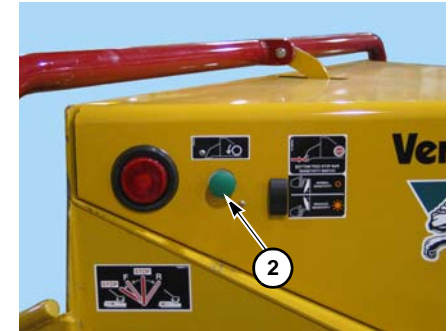
IMPORTANT: When *Hold-to-Run Button* is released:

- Feed roller stops if either bar is in the STOP position.
- Feed roller runs if both bars are in the RUN position.

If material continues to strike the bar and stop the feed roller, trim or shorten material before feeding it into the chipper.

NOTE: Each time the engine key is turned ON, the rear warning light (3) flashes quickly, and *Hold-to-Run Button (2)* must be pushed to start feed roller.

NOTE: Engine throttle must be set at HIGH RPM before feed roller will start.



SMARTFEED OPERATION

SmartFeed monitors and automatically controls various machine functions to maintain optimum engine performance. Its primary function is to control the infeed and cutting systems when they are heavily loaded. SmartFeed also does the following:

- controls the engine hourmeter
- controls engine low oil and high temperature shutdown system
- provides timer and reset functions for the *Lower Feed Stop Bar*, *Side Feed Stop Bars*, and *Upper Feed Control Bar*.

Cutting System

When engine speed drops below a preset RPM because of heavy chipping, SmartFeed momentarily reverses, then stops the feed roller. The feed roller starts again once the engine speed recovers. This sequence may occur a number of times before the material completely passes through the machine. The preset RPM setting depends on which of the three Resistor Packs is being used. Contact your Independent Vermeer Industrial Dealer for the one that is best for your chipping needs.

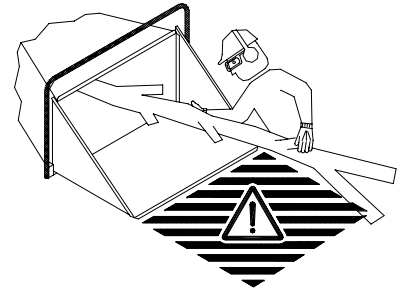
CHIP MATERIAL



WARNING: Check material being chipped. Avoid stones, wire, or other objects which may damage the knives and become dangerous projectiles.

Feeding Tips

- If feeding material by hand, always feed from the side of the infeed chute; never directly behind it.
- Feed large end of log or branch into chipper first.
- To stay out of traffic while operating along a road, feed material from the curb side.
- If feeding brushy material that frequently catches on *Lower Feed Stop Bar* and stops the feed roller, change sensitivity setting to **REDUCED SENSITIVITY**.
- Sometimes during feeding, a limb will suddenly turn or move sideways and may strike you. To reduce the possibility of being struck, release the limb immediately after it begins feeding and then turn away.



Material Size

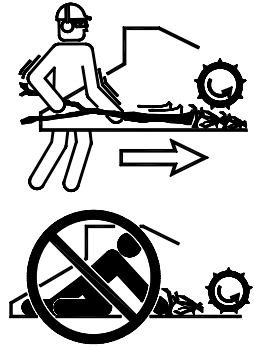
- The brush chipper will chip logs approximately 12" (30 cm) in diameter.
- Sometimes a log, due to its size and shape, will not go in. Trim or shorten the log to aid feeding it into the chipper.

Plugs or Stalls

- If the discharge chute, cutter drum, or feed roller becomes plugged during operation, refer to [Removing Plugs from the Brush Chipper, page 51-1](#).
- If the engine stalls while chipping, disengage cutter drum before restarting engine.
- Start engine and, before engaging cutter drum, reverse feed roller to remove the material that caused the stall.

Finishing

- Chipped material that accumulates in the infeed chute can be pulled into the machine by feeding in a piece of brush, or by pushing it in with a long limb. **Never** push chipped material with hands, feet, rake, shovel, or any other object.
- When the chipping operation is complete, follow [Shutdown Procedure, page 22-1](#).



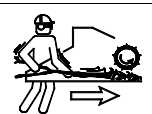
Section 51: Removing Plugs from the Brush Chipper



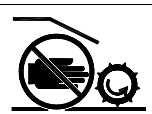
DANGER: Limbs can snag clothing. Roller or blades can grab and pull you in faster than you can let go of limb. Cutting injury or death will result.



Never climb onto feed table.



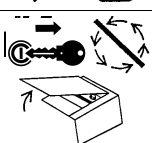
Use wood object to push short material.



Keep away from rotating feed roller and blades.



WARNING: Rotating knives behind cover can cut off hand.
Thrown objects can strike you.



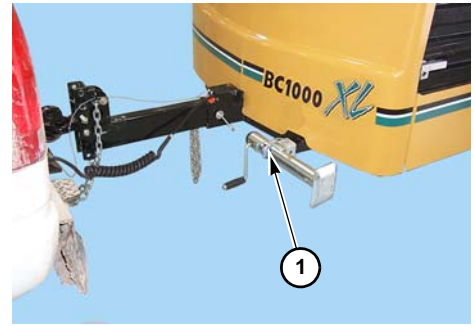
Stop engine, wait for drum to stop, then open access cover.



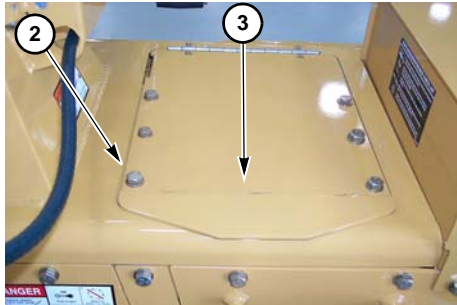
FEED ROLLER - UNPLUG

If the feed roller becomes plugged, reverse it using the *Upper Feed Control Bar*. Inspect dislodged material, ensuring it is not too large or has branches that prevent it from being fed into the machine. If reversing the feed roller does not dislodge the plug:

- Step 1: Follow [Shutdown Procedure, page 22-1](#).
- Step 2: Remove jack from the transport position by removing attachment pin (1) and sliding jack off the mount.
- Step 3: Attach jack to mount located on the feed roller carriage assembly, with the jack base between the forks of the assembly (2). Secure with attachment pin.
- Step 4: Lower jack foot to raise the feed roller.
- Step 5: Remove plug from the rear of the machine.
- Step 6: Fully raise jack foot. Remove jack by removing attachment pin and sliding jack off the mount.
- Step 7: Return jack to transport position and secure with attachment pin.



CUTTER DRUM - UNPLUG



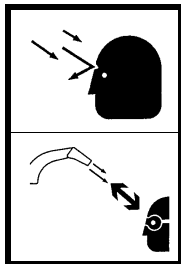
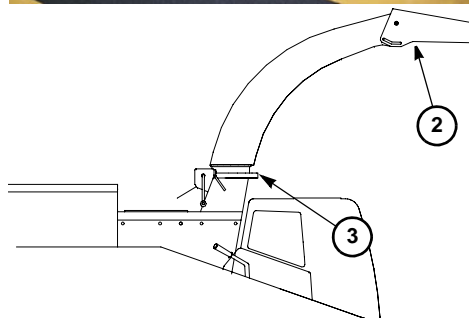
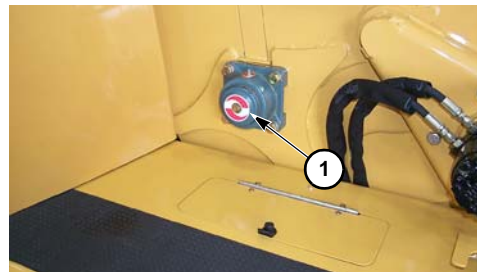
IMPORTANT: Wear gloves when working near the cutter drum knives. Keep hands away from sharp knives.

- Step 1: Follow [Shutdown Procedure, page 22-1](#).
- Step 2: Check that cutter drum rotation has stopped by looking to see if drum shaft end (1) has stopped.
- Step 3: Remove six bolts (2) and washers and open top cutter access door (3).
- Step 4: Reverse rotation of the cutter drum to dislodge chips by pushing on the outside surface (4) of the drum. Stay well away from cutter knives.
- Step 5: If necessary to access bottom of drum, remove four bolts and lower shear bar access door located under machine (refer to the [Maintenance Manual](#), "Maintenance as Required" section).
- Step 6: Remove chips.
- Step 7: Close and bolt the access doors.
- Step 8: Operate machine, without chipping additional material, to blow out chips that remain in the chipper housing.

DISCHARGE CHUTE - CLEAN OUT

Most plugs can be removed using the following procedure:

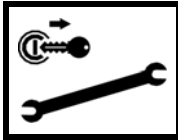
- Step 1:** Shut off machine using [Shutdown Procedure, page 22-1](#).
 - Step 2:** Check that cutter drum rotation has stopped by looking to see if drum shaft end **(1)** has stopped.
 - Step 3:** Rotate discharge chute in place over left side of machine.
 - Step 4:** Stand on the non-slip material on the fender and push a stick or wooden broom handle, if available, down the end of the discharge chute **(2)** to dislodge the plugged material.
 - Step 5:** If you are unable to dislodge the plugged material, unbolt the discharge chute at the rotation ring **(3)** and clean out the plugged material.
 - Step 6:** Install cleaned discharge chute.
- IMPORTANT:** Use an appropriate lifting system when removing and installing the discharge chute.
- Step 7:** Operate machine, without chipping additional material, to blow out chips that remain in the chipper housing and discharge chute.



WARNING: Thrown objects can blind you.

Keep everyone away from discharge area while cutter drum is turning. Direct discharge chute away from people. Wear eye protection.

Section 60: Maintenance Intervals



WARNING: Use Shutdown Procedure before servicing, cleaning, repairing, or transporting machine. Refer to [Shutdown Procedure, page 22-1](#), for instructions.

Visually inspect machine daily before starting the machine.

Make no modifications to your equipment unless specifically recommended or requested by Vermeer Manufacturing Company.

SAFETY SIGNS

Safety signs located on your machine contain important and useful information that will help you operate your equipment safely. Refer to the [Parts Manual](#) for locations and [Controls, page 20-1](#), for other information.

To assure that all signs remain in place and in good condition, follow instructions given below:

- Keep signs clean. Use soap and water - not mineral spirits, abrasive cleaners, or other similar cleaners that will damage the safety sign.
- Replace any damaged or missing signs. When attaching signs, the temperature of the mounting surface must be at least 40°F (5°C). The mounting surface must also be clean and dry.
- When replacing a machine component with a sign attached, replace sign also.
- Replacement signs can be purchased from your Vermeer equipment dealer.

MAINTENANCE MANUAL

Maintenance intervals are included for reference only. Before performing any maintenance, refer to the [Maintenance Manual](#) for safety guidelines and correct procedures.

HOURLY METER - CHECK FOR MAINTENANCE INTERVAL

The hourmeter on the power unit is used to determine maintenance intervals for the machine. The hourmeter indicates the total number of hours the engine has been in operation.

Maintenance intervals are based on normal operating conditions. When operating under severe conditions, the maintenance intervals should be shortened.

MAINTENANCE INTERVALS

Initial = Initial maintenance on new machine. Regular maintenance interval may be different.

- = Regular maintenance interval.

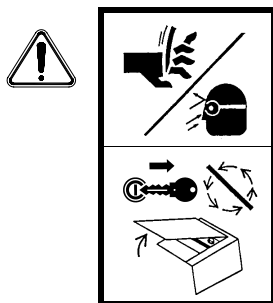
Service	Maintenance Interval - Service Hours								
	5 or 2 x Daily	10 or Daily	50 or Weekly	100	250	500	1000	2000	As Reqd.
Cutter Drum Bearings - Grease	●								
Clutch Arm Bearings - Grease	●								
Engine Drive Belt -Inspect		●							
Engine Cooling System - Check		●							
Engine Oil Level - Check		●							
Air Cleaner Restriction Indicator - Check		●							
Hydraulic Fluid Level - Check		●							
Fuel Tank - Fill		●							
Brake System - Check		●							

Service	Maintenance Interval - Service Hours								
	5 or 2 x Daily	10 or Daily	50 or Weekly	100	250	500	1000	2000	As Req'd.
Discharge Chute Rotation Gear - Lubricate		●							
Drum and Knives - Check		●							
Fluid Level in Optional Hydraulic Surge Brake - Check		●							
Feed Roller Controls - Check		●							
Hydraulic Fluid Filter - Initial Replacement			Initial						
Belt Drive Pivots - Grease			●						
Cutter Drum Drive Belt Tension - Check			●						
Muffler - Clean			●						
Machine - Grease			●						
Hydraulic System - Check				●					
Overall Machine - Check				●					
Tires and Rims - Check				●					
Valve Lash Clearance - Initial Adjustment					Initial				
Air Intake System - Check					●				
Corrosion Inhibitors - Add to Coolant					●				
Engine Oil and Filters - Change and Replace					●				
Hydraulic Fluid Filter - Replace					●				
Jack - Lubricate					●				
Battery Electrolyte Level and Terminals - Check					●				
Electric Brakes - Test					●				
Automatic Brake Controller - Check					●				
Brakes - Adjust					●				
Function of Optional Hydraulic Surge Brakes - Check					●				

Service	Maintenance Interval - Service Hours								
	5 or 2 x Daily	10 or Daily	50 or Weekly	100	250	500	1000	2000	As Req'd.
Cooling System - Check						●			
Injection Pump - Vent						●			
Fuel Filter - Replace						●			
Fuel Supply Lines - Vent						●			
Hydraulic Fluid - Change						●			
Wheel Bearings - Check						●			
Ball Coupler - Lubricate and Inspect						●			
Drive Belt Tension - Check							●		
Surge Brake Actuator - Grease (BC1000XL EU)							●		
Park Brake Lever - Grease (BC1000XL EU)							●		
Cooling System - Flush								●	
Valve Lash Clearance - Adjust								●	
Battery - Replace									●
Air Cleaner - Inspect and Replace									●
Feed Control Bar Force - Adjust									●
Cutter Drum Drive Belt - Replace									●
Highway Lights - Replace									●
SmartFeed System Fuse - Replace									●
Curtain - Replace									●
Shear Bar - Check/Adjust/Replace									●
Lower Feed Stop Bar Switch - Adjust									●
Slip Hook - Replace									●
Towing Chain - Replace									●
Storage									●

Section 61: Knife/Drum Maintenance

The recommended service interval for cutter knives is 10 service hours. However, the actual service hours interval before knife maintenance is required may be more or less, depending upon the wood being chipped and chipping conditions.



WARNING: Rotating knives under cover can cut off hand.
Thrown objects can strike you.

Stop engine, wait for drum to stop, then open access cover

Performing the following maintenance procedures will aid in reducing the possibility of the knives becoming loose, failing, and being ejected from the machine.

KNIFE REMOVAL

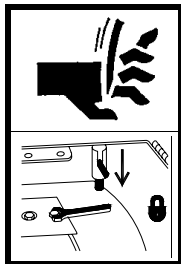
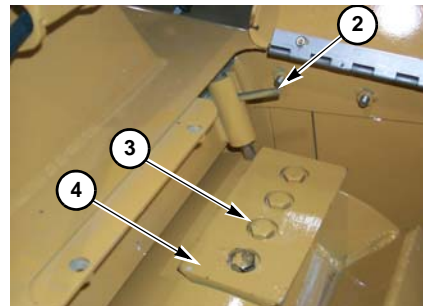
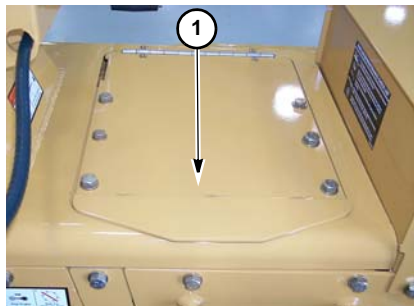


WARNING: Wear gloves when working with the cutter drum knives. Serious cutting injuries will result if contact is made with the knives while removing or installing them.

IMPORTANT: Always remove and replace knives as sets. Chipper balance can be affected if matched knives are not kept together.

To remove knives:

- Step 1: Follow [Shutdown Procedure, page 22-1](#).
- Step 2: Remove six bolts and washers, and open cutter drum access door (1).



WARNING: Knives can cut off hand.

Lock drum before servicing knives.

- Step 3: Lock cutter drum to prevent the drum from rotating while working on the knives. Align one of the two lock holes in the cutter drum and engage lock pin (2).
 - Step 4: Remove four bolts (3) from first knife (4). To prevent damage, do not use impact tool to remove bolts.
 - Step 5: Lift off knife from drum.
 - Step 6: Unlock cutter drum and rotate 1/2 turn to the next cutter knife.
- NOTE:** Rotate by pushing on the outside surface of the drum.
- Step 7: Lock cutter drum.
 - Step 8: Repeat Steps 2–5 to remove both knives.
 - Step 9: Clean and inspect the drum, mounting surfaces, knives, and bolts as per the instructions that follow.

Knife Inspection

- **Cracks** — Thoroughly clean the knives and inspect both sides of each knife for cracks. If any are found, discard the knife and install a new one.

Cracks (1) that start at the mounting hole and progress outward result from the mounting bolts being improperly torqued.

NOTE: Knife sizes and number of mounting holes may vary between machine models.

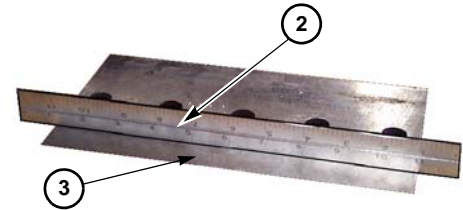
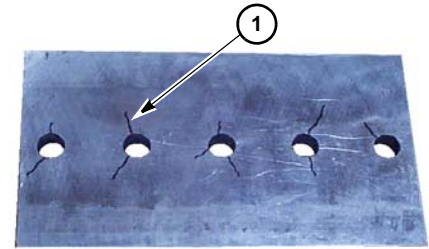
If cracked knives are reused, the cracks will extend across the knife and the knife can separate from the cutter drum.

- **Distortion** — Check the mounting side of the knife for distortion. Bolting a distorted knife to the cutter drum will add stresses in the knife and possibly cause knife cracking and failure.

Step 1: Place a straightedge (2) on the mounting side of the knife (3) and parallel to the mounting holes as shown.

Step 2: Move straightedge slowly across the knife surface, and monitor for any light that shows between the knife and straightedge. If any light appears between the knife surface and the straightedge, this indicates that the knife is distorted, and the knife must be replaced.

Step 3: Turn straightedge perpendicular to mounting holes and repeat Step 2.



Bolt Inspection



WARNING: Incorrect maintenance and torquing of the knife-mounting bolts can cause the knives to become detached from the cutter drum. Death or serious injury is possible if the failed knives are ejected from the machine and strike someone. Extensive and costly damage to the cutter drum and machine will probably occur if the knives become detached.



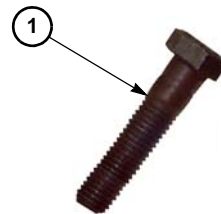
WARNING: Knife-mounting bolts must be replaced each time knives are sharpened or replaced. Bolts may be reused **ONLY ONCE** when rotating knife to its second cutting edge. Failure to replace bolts can cause knife/drum separation resulting in death or serious injury, and machine damage.



WARNING: Overtightened bolts can cause knife distortion, allowing wood to pack under the knife. Distorted knives can crack and fail resulting in death or serious injury, and machine damage. Use a straightedge and check all knives for distortion; discard any that are distorted.

IMPORTANT: When installing a new or sharpened set of knives, discard the existing mounting bolts and use new Vermeer-approved bolts. Repeated reuse of the bolts will decrease their clamping capacity each time the bolts are torqued. Inadequate clamping of the knives will cause the knives to loosen and fail.

Bolts —Inspect bolts **(1)** for damaged threads, corrosion, and distortion. If any are found, discard the bolt and install a new one.



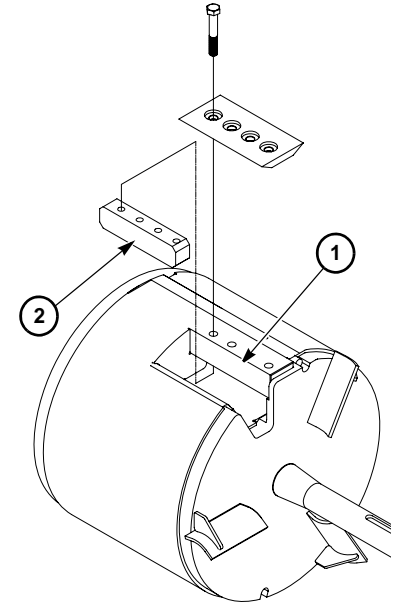
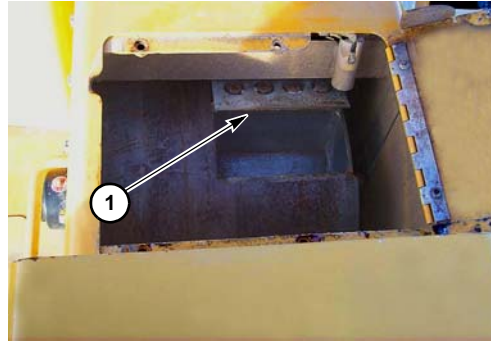
Knife Mount Surface Inspection

When a cutting knife is removed from the drum, the knife-mounting surfaces on the drum must be cleaned and inspected.

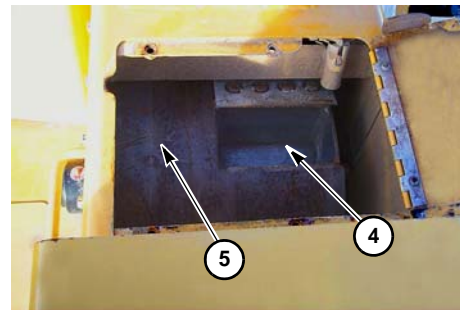
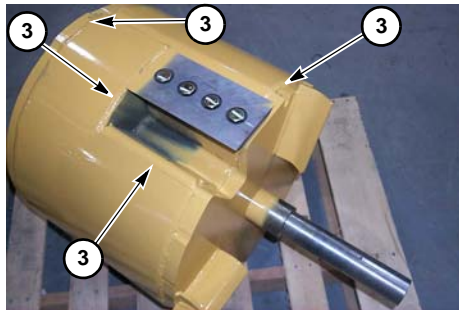
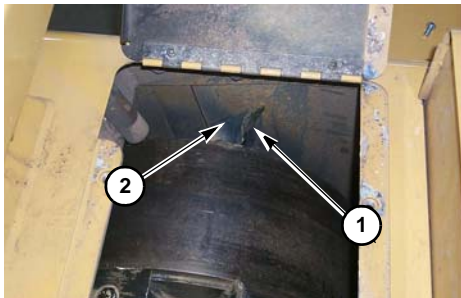
IMPORTANT: Any debris left on the mounting surface can prevent the knife from lying perfectly flat on its mating surface. Any dirty or damaged threads will affect the bolt torque, and prevent the knives from being properly clamped. Either of these conditions can lead to knife failure during operation.

Thoroughly clean and inspect the following:

- **Knife Mount Surface** — Remove all wood chips and other material from the mounting pocket area (1).
- **Replaceable Thread Bars (2)** — Replace when threads become worn, distorted, or damaged.



DRUM INSPECTION



The cutter drum must be free of any damage. Thoroughly clean and inspect the following:

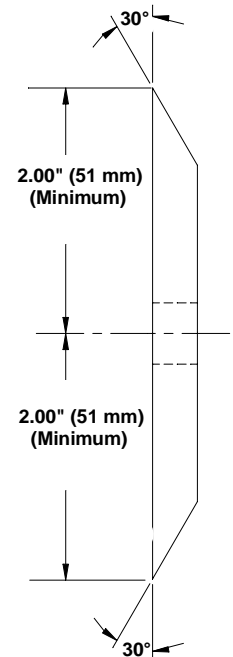
- **Air Paddles** — Inspect air paddles (1) and their gussets (2) for cracking and deformation.
- **Edge Welds** — Inspect entire drum for cracks (3) in the welds where the drum sides are joined to the drum. Use a mirror to aid in this inspection.
- **Pockets** — Closely inspect area in and around knife mount and pockets (4) for damage or cracks.
- **Cutter Drum Surface** — Inspect drum surface (5) for cracks that may begin at the pockets and migrate outward.

If any drum damage or cracks are found, contact an authorized independent Vermeer dealer.

KNIFE SHARPENING

- Sharpen knives at a 30° angle.
- Use a soft “J” grade grinding wheel with 36 to 46 grit.
- Use adequate coolant while grinding.
- Hone knives between sharpenings with an oil honing stone.

IMPORTANT: The knives are double-edged and have a minimum usable size of 2.00" (51 mm) measured from the centerline of the bolt holes to the knife edge. Do not use a side of a knife that measures less than this.



Knife Installation

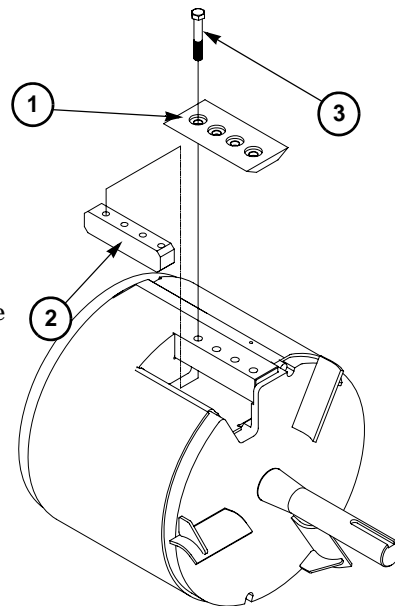
Step 1: Clean and inspect all cutter drum components as per the preceding instructions.

Step 2: Lock cutter drum.

Step 3: Install knife **(1)** with the bevel oriented as shown, and with thread bar **(2)** in place inside drum.

IMPORTANT: On resharpened knives, measure the distance from the mounting holes to the sharpened edges. Mount knives so edges with the same measurement are oriented the same way at both locations.

Step 4: Lubricate bolts **(3)** with light oil and install. Lightly tighten all four bolts to hold the knife in place.



WARNING: Mounting bolts **(3)** must be replaced each time knives are sharpened or replaced. Bolts may be reused **ONLY ONCE** when rotating knife to its second cutting edge. Failure to replace bolts can cause knife/drum separation resulting in death or serious injury, and machine damage.

Also, to prevent bolt damage, do not use a power or impact tool to install knife/drum bolts.

Step 5: Torque bolts with a torque wrench to 210 ft-lb (285 Nm) beginning with the center bolts. Torque in the same sequence again after the last bolt is tightened.



WARNING: Overtightened bolts can cause knife distortion, allowing wood to pack under the knife. Distorted knives can crack and fail resulting in death or serious injury, and machine damage. Use a straightedge and check all knives for distortion; discard any that are distorted.

Step 6: Unlock cutter drum and rotate 1/2 turn to the next cutter knife.

Step 7: Lock cutter drum.

Step 8: Repeat Steps 3–5 to install both knives.

Step 9: Release drum lock, close and secure cutter drum access door.

NOTE: The cutter drum access door will not fully close until the drum lock pin is released and stored.

Step 10: Adjust shear bar (refer to the *Maintenance Manual, Maintenance As Required* section, “Shear Bar - Adjust”).

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Revision History

Revision	Date	Page(s)	Description
o1_00	8/01	All	1st edition manual released.
o1_01	8/01	25-1–4, 50-1	Correct gauge photos, general updates
o1_02		All	New safety message format
o2_00	03/03	25-6; Sec. 35; 40-3; Secs. 45, 50, 55, 60, 65.	Updated information, new cutter drum
o3_00	01/04	All	3rd edition manual released. Tier 2 engine. Update model name on serial plate.
o3_01	03/05	Intro.; Patents; TOC; R&D, all; Ctrls, 20-5–10; Starting, 25-2; Trans., 35-1–3,8–10; Prep., 40-7; Op., 50-3–8; Remove Plugs, all; Maint. Int., all; Knife/Drum Maint., 65-1–2; Index.	Addition of EU machine info; Safety and formatting updates.
o3_02	10/05	TOC; Transporting, 30-2; Preparing, 40-3,4; Operating, 50-3,7,8; Maint. Intervals, 60-2–4; Index.	Safety updates; hitch bolt torque information; new Maintenance Intervals chart added.
o3_03	07/06	Patents; Removing Plugs, 51-4.	Patents update; error fix.
o3_04	08/06	Warranty; Removing Plugs, 51-4.	Addition of extended limited warranty rider; updated information.
o3_05	07/07	Intro., Patents, Warranty; Controls, 21-4,5; Shutdown, 23-1; Operating, 50-3,4.	Feed roller operation/Safety updates. Updated covers, Intro., Warranty, Patents.
o3_06	10/09	TOC; Safety, p. 10-1; Controls, pp. 20-5–8; Transport, p. 30-9; Operating, p. 50-2–8; Remove Plugs, pp. 51-1,3; Maint. Intervals, pp. 60-2,4; Knife/Drum Maint., p. 61-9; Index.	Updated feed roller and shear bar terminology; misc. updates.



WARNING

The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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Vermeer Manufacturing Company
1210 Vermeer Road East, P.O. Box 200
Pella, Iowa 50219-0200**