

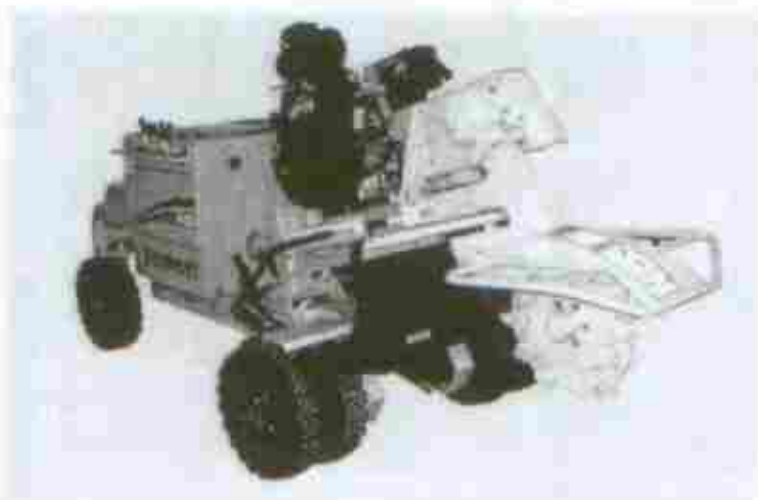
Vermeer®

SC352 Stump Cutter

Operator's Manual



SC352_c2_00
Serial No. 2001 -
Order No. 105400X91
Cabled Order No. 153638117



NOTE: Right and left sides of the machine are determined by facing toward the cutter wheel (front end).

TRADEMARKS

VERMEER, VERMEER Logo, and AUTOSWEEP are registered trademarks of Vermeer Manufacturing Company. VANGUARD and BRIGGS & STRATTON are trademarks of Briggs and Stratton Corporation.

DAIHATSU is a trademark of Daihatsu Motor Co. Ltd.

LOCTITE and VIBRA-SEAL are trademarks of Loctite Corporation.

SC352 Stump Cutter

PATENTS

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

AU 756,936	US 5,237,888	US 5,720,354	US 6,247,544	US 6,439,319	US 6,557,851
CA 2,715,630	US 6,291,964	US 6,746,278	US 6,269,997	US 6,446,365	US 6,577,854
DE 696 11 846	US 5,509,220	US 5,788,811	US 6,308,787	US 6,446,889	US 6,585,062
DE 200 14 959.5	US 5,544,055	US 5,778,991	US 6,318,062	US 6,454,025	US 6,588,516
DE Des. 95 006 85 4	US 5,553,407	US 5,819,859	US 6,332,502	US 6,470,070	US 6,651,755
EP 272,543	US 5,396,253	US 5,845,895	US 6,357,537	US 6,474,901	US 6,658,202
EP 830,522	US 5,574,642	US 5,904,210	US 6,360,830	US 6,474,032	US 6,608,946
EP 885,343	US 5,589,474	US 5,944,723	US 6,367,384	US 6,477,795	US 6,684,538
EP 1,153,194	US 5,590,041	US 5,950,942	US 6,374,028	US 6,484,818	US 6,701,647
GB 2,053,636	US 5,607,260	US 6,014,995	US 6,380,300	US 6,491,115	US 6,719,069
HK 1015853	US 5,611,496	US 6,050,350	US 6,389,360	US 6,497,296	US 6,725,579
RU 2,136,902	US 6,657,900	US 6,109,367	US 6,396,207	US 6,511,260	US 6,729,050
US Des. 308,692	US 5,059,985	US 6,119,376	US 6,408,952	US 6,518,898	
US Des. 306,637	US 5,687,807	US 6,138,832	US 6,408,954	US 6,517,733	
US 4,848,423	US 5,090,548	US 6,194,987	US 6,412,715	US 6,533,046	
US 5,205,181	US 5,602,548	US 6,161,630	US 6,422,485	US 6,533,052	
US 5,219,380	US 5,704,142	US 6,195,922	US 6,435,286	US 6,554,082	
This machine may be covered by one or more of the following licensed patents:					
US 4,634,913	US 4,867,255	US 5,148,880			
US 4,858,704	US 4,950,636	US 5,199,740			

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

VERMEER NEW INDUSTRIAL EQUIPMENT LIMITED WARRANTY

(EFFECTIVE NOVEMBER 1, 1998)
WARRANTY PERIOD 12 Months / 1000 Hours

Vermeer Mfg. Co. (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 TO BE 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.

SC352 Stump Cutter

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.
- 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.
- 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 below:

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, Retor 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 Leader Parts, Track Pads, Track Idlers, Rod

RUBBER TIRE: Bearings, End Rollers, Belts, Pins, Trench Cleaner, Tires, Bucket, Brake Pads, Clutches, Track Sprockets, Sprockets, Chains, Bushings, Booms, Rubber Shielding, Bucket Teeth, Pile 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 or reinstallation.

SC352 Stump Cutter

EXCLUSIONS OF WARRANTIES: EXCEPT FOR THE WARRANTIES EXPRESSLY AND SPECIFICALLY MADE HEREIN, 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 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.

ADDENDUM TO VERMEER NEW INDUSTRIAL EQUIPMENT LIMITED WARRANTY FOR DRIVE SYSTEM ONLY GEAR-DRIVEN STUMP CUTTERS

In addition to the general Vermeer New Industrial Equipment Limited Warranty applicable to your new Stump Cutter, Vermeer Manufacturing Company warrants to the original purchaser of each new Stump Cutter that the Drive-System Components, as hereinafter defined, shall be free from defects in materials and/or workmanship, under normal use and service, for three (3) full years from date of delivery to such original purchaser, or 3,000 operating hours, whichever occurs first. Drive-System Components include ONLY the (i) upper gearbox, (ii) lower gearbox, and (iii) driveshaft. Drive-System Components DO NOT INCLUDE the power takeoff assembly, engine or other non-Drive-System Components and assemblies.

THE GENERAL VERMEER NEW INDUSTRIAL EQUIPMENT LIMITED WARRANTY SHALL BE APPLICABLE FOR LIMITATIONS ON AND PROCEDURES IN APPLYING THIS ADDITIONAL LIMITED WARRANTY FOR DRIVE-SYSTEM COMPONENTS AND FOR OTHER APPLICABLE LIMITATIONS AND PROVISIONS.

MANUFACTURED BY:
VERMEER MANUFACTURING COMPANY
Pella, Iowa 50219

SC352 Stump Cutter

Table of Contents

Receiving and Delivery Report		Battery Burns - Avoid	21-3
Dealer Prep		Jump-Starting Procedure	21-4
Engine		Cold Weather Starting	21-5
Hydraulics			
Drivetrain		Shutdown Procedure	22-1
General		Stopping the Machine	22-1
Delivery		Quick Stop Procedure	22-1
General			
Review of Operation		Transporting the Machine	30-1
Dealer/Customer Information		Driving the Machine	30-1
Identification Numbers - Record		Loading Machine onto Truck Bed or Utility Trailer	30-1
		Unloading the Machine from a Trailer	30-2
Safety Messages	10-1	Outer Dual Wheels - Remove/Install	30-3
Safety Symbol Explanation	10-1	Curtain Support Bar - Position	30-4
Controls	20-1	Preparing the Stump Cutter and Work Area	40-1
Engine Controls - Daihatsu (Diesel)	20-1	Operator Qualifications	40-1
Engine Controls - Vanguard (Gas)	20-3	Personal Protective Equipment	40-1
Ground Drive/Cutter Wheel Controls	20-4	Sound and Vibration Levels	40-2
		Prepare Work Area	40-3
Starting Procedure	21-1	Prepare Machine	40-3
Starting the Daihatsu Diesel Engine	21-1	Fuel Tank - Fill	40-3
Starting the Vanguard Gas Engine	21-2	Daihatsu (Diesel) Engine System - Check	40-4
Jump-Starting	21-3	Vanguard (Gas) Engine System - Check	40-5
Battery Explosion - Avoid	21-3	Hydraulic Fluid Level - Check/Add Fluid	40-6

Operating the Machine	50-1
Cutter Wheel Guard	50-1
Runover/Rollover Prevention	50-2
Machine Operation	50-3
Engine Operating Angle	50-7
4-Wheel Drive Operation (Optional)	50-7
Removing Chips	50-8
Blade Operation (Optional)	50-9
Intended Use	50-9
Clear Stump Debris	50-9
Maintenance Intervals	60-1
Hourmeter - Check for Maintenance Interval	60-1
Machine - Grease	60-1
Safety Sign Maintenance	60-1
Maintenance Intervals	60-2
As Required	60-4

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 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 Imminent hazards which, if not avoided, will result in serious personal injury or death.

WARNING Potential hazards or unsafe practices which, if not avoided, could result in serious personal injury or death.

CAUTION Potential hazards or unsafe practices which, if not avoided, could result in minor personal injury or product or property damage.

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.

SC352 Stump Cutter

Safety Messages 10-1



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 the *Preparing the Stump Cutter and Work Area* section, "Personal Protective Equipment," 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: Fuel and fumes can explode and burn.

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



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.

This page intentionally left blank.

Section 20: Controls

ENGINE CONTROLS - DAIHATSU (DIESEL)

(1) Ignition Switch

Center position engine off

1st position clockwise engine on

Fully clockwise engine start

(2) Glow Plugs/Shutdown Bypass Switch

After turning Ignition Switch to ON, push and hold for 5 seconds before starting; continue to hold for an additional 5 seconds after engine has started.

(3) Throttle

Up increase RPM

Down decrease RPM



SC352 Stump Cutter

Controls 20-1

(4) Hourmeter

Records total machine operation time.

(5) Alternator Warning Light

On not charging



NOTE: Engine is equipped with oil pressure and coolant temperature sensing switches. When oil pressure decreases below an acceptable level or coolant temperature exceeds an acceptable level, the engine will shut off.



ENGINE CONTROLS - VANGUARD (GAS)

(1) Ignition Switch

Vertical position engine off

1st position clockwise engine run

Fully clockwise engine start

(2) Throttle

Push right increase RPM

Push left decrease RPM

(3) Choke

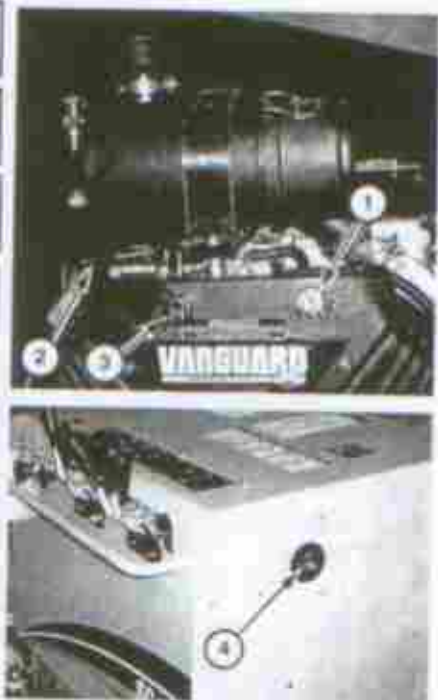
Push open choke

Pull close choke

(4) Hourmeter

Records total machine operation time.

NOTE: Engines are equipped with an oil pressure sensing switch. When oil pressure decreases below an acceptable level, engine will shut off.



GROUND DRIVE/CUTTER WHEEL CONTROLS

(1) Cutter Wheel Swing

Push cutter wheel swings away from operator

Pull cutter wheel swings toward operator

NOTE: When equipped with an AutoSweep control system, the swing speed is controlled by it. The system monitors engine speed and adjusts hydraulic oil flow to the swing cylinders to maintain engine RPM in the operating range.

(2) Cutter Wheel Raise/Lower

Push lower cutter wheel or blade

Pull raise cutter wheel or blade

(3) Ground Drive Directional Lever

Push FORWARD

Pull REVERSE



(4) Steering Lever

Push..... steer machine away from operator in FWD or REV

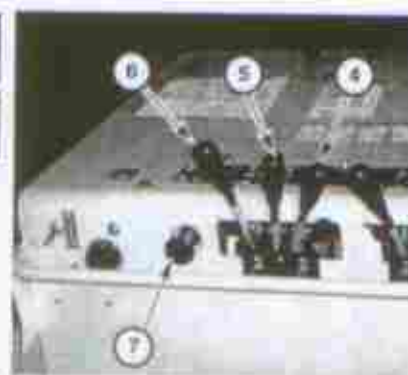
Pull..... steer machine toward operator in FWD or REV



(5) Front Blade (Optional) Raise/Lower

Push..... lower blade

Pull..... raise blade

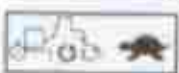


(6) Ground Speed Lever

Push..... 2-wheel drive high

Center..... 2-wheel drive low

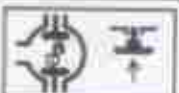
Pull..... 4-wheel drive low (optional)



(7) Differential Lock (front dual wheels only)

Push..... unlocked

Pull..... locked



(8) Cutter Wheel Drive Switch

Out and Up..... engage

Down..... disengage



(9) Swing Speed (without optional AutoSweep control)

Clockwise..... increase speed

Counterclockwise..... decrease speed



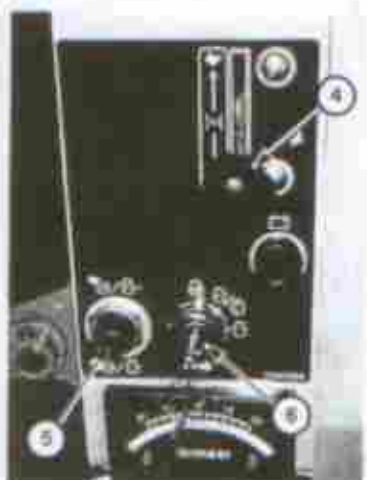
Section 21: Starting Procedure

STARTING THE DAIHATSU DIESEL ENGINE

- Step 1: Check fuel level at gauge under cap (1).
- Step 2: If tank is empty, prime fuel system at primer/filler (2).
- Step 3: Ensure Cutter Wheel Drive Switch (3) is OFF.
- Step 4: Move Throttle Lever (4) to SLOW.
- Step 5: Hold Glow Plugs Switch (5) for 5 seconds while Ignition Switch is in the ENGINE ON position. Continue to hold for 5 seconds after engine is running.

IMPORTANT: Never run starter motor for more than 10 seconds at a time. Allow it to cool 1 minute between attempts.

- Step 6: Turn Ignition Switch (6) fully clockwise to START. Release the switch as soon as the engine starts.



SC352 Stump Cutter

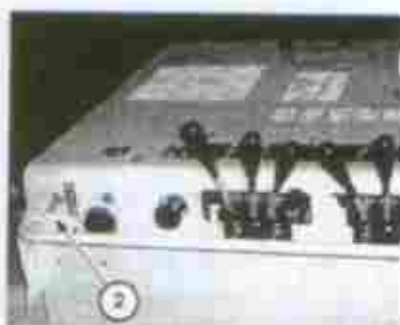
Starting Procedure 21-1

STARTING THE VANGUARD GAS ENGINE

- Step 1: Check fuel level at gauge under cap (1).
- Step 2: Ensure Cutter Wheel Drive Control Switch (2) is OFF.
- Step 3: Move Choke Control (3) to CHOKE or START.
- Step 4: Move Throttle Lever (4) right to FAST.
- Step 5: If the engine is cold, pull choke (3) to fully close.

IMPORTANT: Never run starter motor for more than 5 seconds at a time. Allow it to cool 1 minute between attempts.

- Step 6: Insert key in Ignition Switch (5) and turn fully clockwise to START. Release switch as soon as the engine starts.
- Step 7: Allow engine to warm up. Gradually push choke (3) in toward RUN position. Wait until engine runs smoothly before each choke adjustment.
- Step 8: Adjust throttle to get an even idle speed, and allow engine to warm up before engaging cutter wheel.



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 so equipped, battery caps must be in place and tight.

Battery Burns - Avoid



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.

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.

SC352 Stump Cutter

Starting Procedure 21-3

Jump-Starting Procedure

IMPORTANT: The machine has a 12-volt starting system. Use only a 12-volt system for jump-starting.

IMPORTANT: Review battery service safety guidelines before jump-starting machine (refer to battery maintenance instructions in the Maintenance - 500 Service Hours section of the Maintenance Manual).

IMPORTANT: 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.

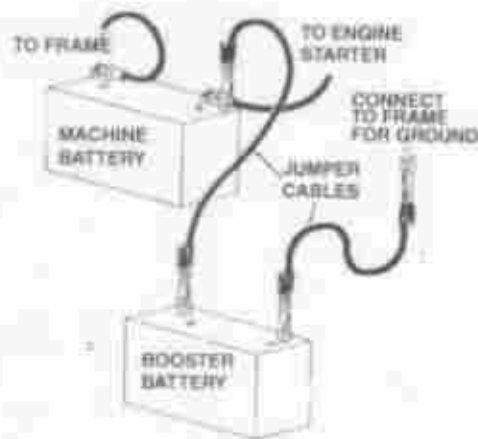
IMPORTANT:

- Step 1: Turn ignition switch to OFF.
- Step 2: Connect jumper cables in the following order:
- Red to discharged battery POSITIVE (+) terminal.
 - Red to boost battery POSITIVE (+) terminal.
 - Black to boost 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 battery, always disconnect black jumper cable from booster battery before making any adjustment to red jumper cable.

Step 3: Start engine.

Step 4: Remove cables in REVERSE order and install covers over battery cable clamps.



COLD WEATHER STARTING

When operating in cold weather it is important to use the recommended engine oil viscosity and fuel to reduce starting problems (refer to the Engine Operation Manual).

In cold weather, the hydraulic oil will become thicker causing hydraulic functions to move slower until the oil is warmed. A longer warm-up period is required. Allow engine to run for a minimum of five minutes at a fast idle before starting any operating functions.

Before starting the engine, refer to the Engine Operation Manual section on cold weather starting for correct procedures. In addition, refer to "Starting the Daihatsu Diesel Engine," page 21-1, or "Starting the Vanguard Gas Engine," page 21-2.

NOTE: Reduce engine speed if hydraulic pump squeals. Pump squealing may indicate lack of oil which can damage the pump.

This page intentionally left blank.

Section 22: Shutdown Procedure

STOPPING THE MACHINE

When stopping the machine, use the following normal shutdown procedure:

Step 1: Reduce engine speed to idle.

IMPORTANT: Whenever practical and consistent with good safety practice, idle engine with no load for a few minutes before shutting it off. This allows engine temperatures to decrease and equalize, which will increase engine life.

Step 2: Disengage Cutter Wheel Drive.



WARNING: The cutter wheel will continue to turn for a short time after the clutch has been disengaged.

Step 3: Shut off engine and remove key.

Step 4: Wait for the cutter wheel to stop turning.

For your safety and the safety of others, use Shutdown Procedure before servicing, cleaning, unclogging, inspecting, or transporting the machine.

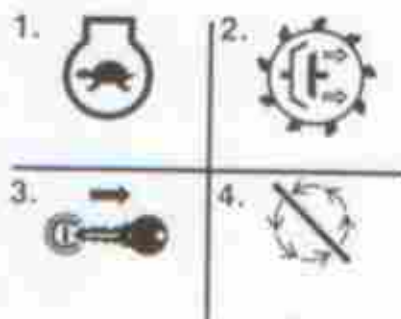
A variation of the above procedure may be used if instructed within this manual or if an emergency requires it.

Quick Stop Procedure

Step 1: Reduce engine speed to idle.

Step 2: Disengage cutter wheel drive.

Step 3: Lower cutter wheel into the ground or a stump until wheel stops.



This page intentionally left blank.

Section 30: Transporting the Machine

DRIVING THE MACHINE



WARNING: Be alert, reduce engine speed, and use extreme caution when operating or driving machines on hillsides or near ditches, gullies, holes, or obstructions where rollover could occur.

IMPORTANT: Until the operator has become familiar with the controls and understands the capability of the machine, use a slower engine speed and LOW ground drive speed when operating ground drive controls.

LOADING MACHINE ONTO TRUCK BED OR GENERAL PURPOSE UTILITY TRAILER



WARNING: Before transporting machine on truck or trailer, read the truck or trailer manual for safety precautions and information. Be sure the trailer bed and ramps are free of obstacles and lubricants that will interfere with the loading process.

Ensure gross weight of the machine is within the gross weight limits of the trailer and the towing vehicle. Refer to the Maintenance Manual, Machine Specifications section, for machine gross weight.

Load and unload machine with trailer on a level surface and attached to towing vehicle.

IMPORTANT: Differential lock must be engaged when climbing the trailer ramps.

Step 1: Start engine.

Step 2: Raise and center cutter wheel.

SC352 Stump Cutter

Transporting the Machine 30-1



WARNING: Rollover can crush. Drive machine on and off the trailer squarely to avoid driving off the side of the trailer and causing possible rollovers. Do not ride on machine.

- Step 3: Position centerline of machine with centerline of the trailer. Drive machine squarely onto the trailer. Stop machine when tie-down position is reached. The tie-down position distributes the weight on the trailer as recommended by the trailer manufacturer.
- Step 4: Lower cutter wheel to the trailer bed.
- Step 5: Shut off engine and remove key.
- Step 6: Fasten each end of the machine to the trailer using the tie-down loops (1) provided at front and rear of machine.

Unloading the Machine from a Trailer

IMPORTANT: Differential lock must be engaged when descending the ramps.

- Step 1: Place trailer on a level surface. Unload machine only when trailer is attached to a tow vehicle.
- Step 2: Remove tie-down chains.
- Step 3: Follow Starting Procedure, page 21-1.
- Step 4: Raise and center cutter wheel.
- Step 5: Drive machine squarely off the truck or trailer.



OUTER DUAL WHEELS - REMOVE/INSTALL

Removing outer dual wheels and repositioning curtain support bar enables the machine to pass through a 36" (91 cm) wide opening.

To remove:

Step 1: Place machine on flat level surface.

Step 2: Raise machine up until tire is 2" off the ground.

NOTE: This can be done using the cutter wheel as a jack. Swing wheel to the side being worked on, then lower it until the dual wheels are off the ground. Shut off engine.

Step 3: Remove 5/8" bolt (1), washer, and outside wheel.

Step 4: Repeat Steps 2-4 on other side.

IMPORTANT: Reverse Steps 3-4 after passing through narrow opening and before continuing to transport machine.

To install:

Step 1: Line up notch in dual tire rim with key on machine tire rim.

Step 2: Install washer and bolt.

CAUTION: If washer is not installed, the end of the bolt could interfere with the brake housing. Tighten to 150 ft-lb (203 Nm).



CURTAIN SUPPORT BAR - POSITION

Removing outer dual wheels and repositioning curtain support bar enables the machine to pass through a 36" (91 cm) wide opening.

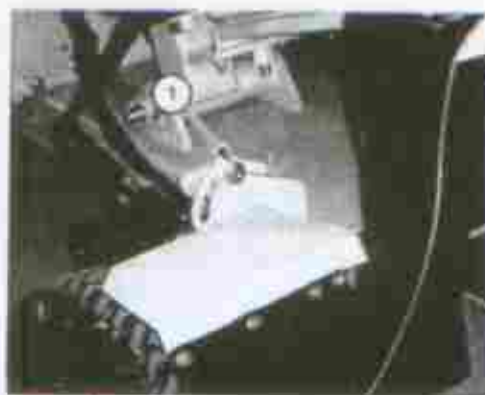
Step 1: **Diesel Engine:** Raise cutter wheel boom and keep raised to avoid damaging machine components.

Step 2: Loosen bolt (1).

Step 3: Swing curtain bar up to vertical position.

Step 4: Tighten bolt (1).

IMPORTANT: Reverse Steps 1-3 to lower curtain to operating position after passing through narrow opening and before starting to grind.



Section 40: Preparing the Stump Cutter and Work Area

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 PROTECTIVE EQUIPMENT



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, hearing protectors, and eye and face 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.

SC352 Stump Cutter

Preparing the Stump Cutter and Work Area 40-1



WARNING: Thrown material can result in eye and face injuries.

Use eye and face protection.

SOUND AND VIBRATION LEVELS

Below are sound pressure, sound power and vibration levels determined according to test procedures specified in ISO 3744 and ISO 11201.

Equivalent Continuous A-Weighted Sound Pressure at Operator's Ear $L_{Aeq} = 95$ dB(A) gas engine
..... 99 dB(A) diesel engine

Sound Power Level $L_{WA} = 109$ dB(A) gas engine
..... 110 dB(A) diesel engine

Hand-arm vibration exposure has been measured according to test procedures specified in ISO 5349. The level is less than 2.5 m/s^2 .



PREPARE WORK AREA



WARNING: Before starting machine, remove loose chunks of wood, secondary growth, stumps, wire, and other debris from stump and work area. Do not cross cut exposed surface roots. The cutter wheel may grab a cut length of root and throw it toward the operator.



WARNING: Keep spectators away.

PREPARE MACHINE

Fuel Tank - Fill

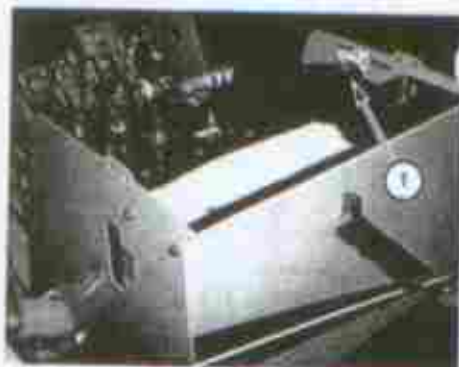


WARNING: Fuel and fumes can explode and burn. Fill fuel tank outdoors. Clean up spilled fuel.

Shut off engine before refueling. No flame. No smoking. Do not allow any hot or burning material near machine.

Fill fuel tank at the end of each day to prevent condensation. Do not fill tank to the very top; leave room for expansion.

(1) Fill Cap/Fuel Gauge

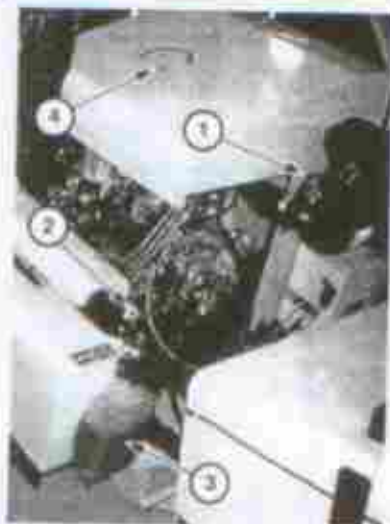


Daihatsu (Diesel) Engine System - Check

- Step 1: Check air filter restriction indicator (1) and external surfaces of engine. Ensure they are clean and not blocked.
- Step 2: With engine level, check engine crankcase oil level at dipstick (2). Fill to, but not above, the "F" mark (refer to the Engine Operation Manual).
- Step 3: Check engine coolant level in expansion bottle (3).

NOTE: Engine is equipped with oil pressure and coolant temperature sensing switches. When oil pressure decreases below an acceptable level or coolant temperature exceeds an acceptable level, the engine will shut off.

IMPORTANT: Keep engine oil fill cap (inside 4) tight and dipstick (2) in place while engine is running.



Vanguard (Gas) Engine System - Check

- Step 1: Check air filter restriction indicator (1) on air cleaner. Check external surfaces of engine. Ensure they are clean and not blocked.
- Step 2: With engine level, check engine crankcase oil level at dipstick (2). Remove fill cap (3) and fill to, but not above, the FULL mark (refer to the Engine Operation Manual).
- Step 3: Check for engine oil leaks.

NOTE: Engine is equipped with oil pressure sensing switch. When oil pressure drops below an acceptable level, the engine will shut off. Do not operate engine until oil pressure is corrected.

IMPORTANT: Keep engine oil fill cap (3) tight and dipstick (2) in place while engine is running.



SC352 Stump Cutter

Preparing the Stump Cutter and Work Area 40-5

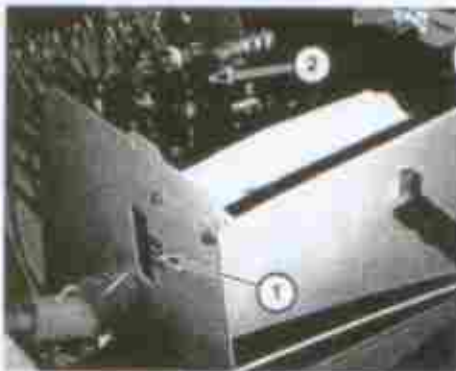
Hydraulic Fluid Level - Check/Add Fluid

Check sight gauge (1). If fluid is needed, clean area around fill cap (2) and remove. Add fluid to sight gauge line. Install fill cap.

Clean hydraulic fluid is very important. Do not spill dirt or other contaminants into the tank. Filter all hydraulic fluid through a 10-micron filter before adding it to the tank.

Refer to the Maintenance Manual, "Specifications" section, for information on hydraulic oil.

NOTE: The hydraulic fluid must be free of bubbles. Bubbles are trapped air that is entering the hydraulic system.



Section 50: Operating the Machine

CUTTER WHEEL GUARD



DANGER: Contact with rotating cutter wheel will result in serious injury, dismemberment, or death.

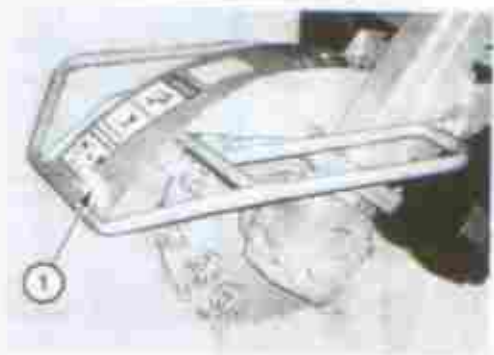
Rotating cutter wheel can throw objects.

Keep guard down.
Stay away.

The cutter wheel guard (1) pivots to allow it to float over obstructions. Never secure guard in the raised position while cutting a stump.



WARNING: Never work on or near the cutter wheel unless the engine is shut off and the cutter wheel stopped.



SC352 Stump Cutter

Operating the Machine 50-1

RUNOVER/ROLLOVER PREVENTION



WARNING: Machine runover can crush resulting in serious injury or death.

Keep operator's feet away when operating machine ground drive.

- Keep feet clear of tires. Stand or walk at a maximum comfortable distance from the machine while operating the controls.
- Never operate machine faster than you can comfortably walk. Use a slower speed on uneven ground or rough terrain.
- Be alert and use extreme caution when operating on hillides, or near ditches, gullies, or obstructions where rollover could occur.
- If machine must be transported across a slope where sideways rollover is possible, operate in a direction which places the operator on the uphill side of the machine.
- Never ride on machine when operating ground drive system.



WARNING: Machine rollover can crush, resulting in serious injury or death.

Do not ride on machine when operating ground drive system.

MACHINE OPERATION

IMPORTANT: Engage and disengage cutter wheel only with engine at idle.

Step 1: Start engine; refer to *Starting Procedure*, page 21-1.

Step 2: Position *Ground Speed Lever* (1) in LOW range.

NOTE: High Range Propel should be used only for light duty grinding. Other uses could cause excessive engine lugging and machine vibration, possibly resulting in damage to machine components.

Step 3: Engage differential lock.

Step 4: Pull *Cutter Wheel Drive Switch* (2) out and lift it to engage the cutter wheel.

Step 5: Move *Throttle Control Lever* (3) to maximum engine RPM.



DAIHATSU (DIESEL)



VANGUARD (GAS)

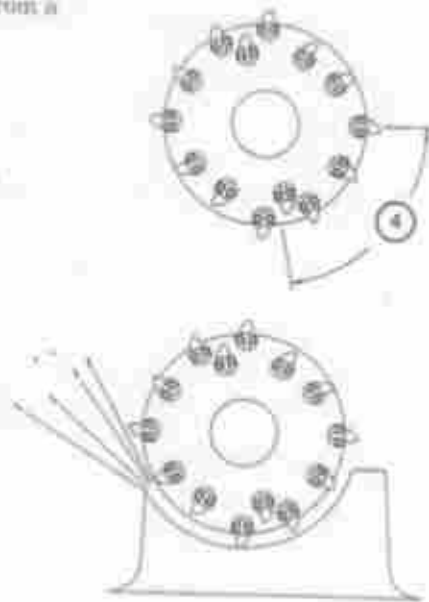
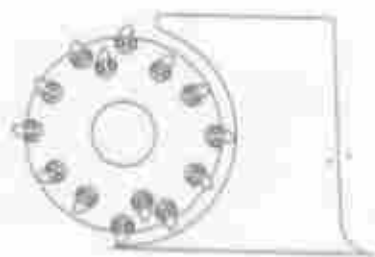
SC352 Stump Cutter

Operating the Machine 50-3

IMPORTANT: Cut stump using only the recommended cutting area (4), which extends from a horizontal line along the center of the cutting wheel and down 80°.

- Never undercut stump. Undercutting can cause violent kickback and component damage.
- Never cut stump from the top. The cutter teeth will throw chips and debris up and toward the operator. Cutting from the top also tends to pull the machine over the stump.

Step 6: Position machine with cutter wheel centered and near front top edge of stump as shown.



Step 7: Use *Cutter Wheel Swing Control Lever* (5) to make a light cut through the stump.



Step 8: With the cutter wheel to the side of the stump, lower the cutter wheel and make a deeper cut as shown.

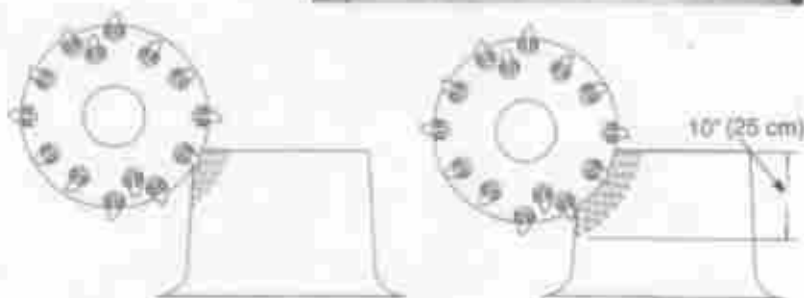
NOTE: The size and speed of cut depends on the hardness of the wood.

Step 9: Repeat previous step until you have cut approximately 10" (25 cm) of the stump or removed stump down to ground level.

Step 10: If equipped with manual swing speed control: Adjust swing speed to match the size and hardness of the stump being cut.

Step 11: If equipped with optional AutoSweep control system:

When *Cutter Wheel Swing Control Lever* is actuated, the AutoSweep system monitors engine speed and adjusts swing speed by varying hydraulic oil flow to the swing system to maintain engine RPM in the operating range.



SC352 Stump Cutter

Operating the Machine 50-5

Step 12: Raise cutter wheel and use *Ground Drive Lever* to move machine 4-6' (10-15 cm) farther into the stump.

Step 13: Repeat previous cutting procedures.

If maximum swing will not completely remove the stump:

Step 1: Lower engine speed to idle.

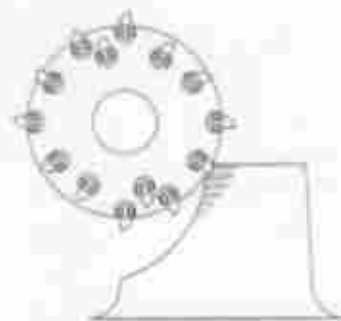
Step 2: Disengage cutter wheel.

Step 3: Fully raise cutter wheel.

Step 4: Wait for cutter wheel to quit turning.

Step 5: Reposition machine.

Step 6: Repeat previous procedures for cutting the stump.



WARNING: Do not cross cut exposed surface roots. The cutter wheel may grab a cut length of root and throw the root toward the operator.

Engine Operating Angle

Check engine operating angle gauge (1) to ensure engine is operating within allowable angle limits.

The engine may run continuously up to 35°. The marginal zone is 28–30°; no more than 10 minutes operation of the diesel engine at this angle is permitted. No more than 2 minutes operation of the gas engine at this angle is permitted. Angles above 30 degrees may result in engine damage.

If the engine is operating outside acceptable angle limits, the boom angle should be adjusted or the machine repositioned to reduce engine operating angle.



DAIHATSU (DIESEL)



VANGUARD (GAS)

4-WHEEL DRIVE OPERATION (OPTIONAL)

4-wheel drive is useful when maneuvering hills or uneven terrain, and to navigate debris pile during stump cutting operation. Refer to "Controls" section for information on engaging and disengaging 4-wheel drive.

REMOVING CHIPS



DANGER: Contact with rotating cutter wheel will result in serious injury, dismemberment, or death.

Rotating cutter wheel can throw objects.

Keep guard down.
Stay away.

If chip buildup interferes with machine operation:

Step 1: Raise cutter wheel and move machine away from the stump.

Step 2: Follow *Shutdown Procedure*, page 22-1.

Step 3: Clear chips with a rake or shovel.

Step 4: Move machine back into position.

When the cutting operation is complete, follow *Shutdown Procedure*, page 22-1.