



M296026H

MODEL NUMBER: 296026

SERIAL NUMBER: _____

Owner's Manual

Instructions for Operation, Maintenance

Compact Stump and Root Grinder

Your NorthStar grinder is intended for outdoor-use only and can be used to remove many tree stumps and exposed root systems close to ground level. By moving the blade in sweeping movements laterally over the top and front of the stump, you can gradually grind it away. Make sure you completely read and understand this manual before using the grinder for the first time.

WARNING

READ and UNDERSTAND this manual completely before using the grinder! Failure to properly operate, and maintain this grinder could result in *serious injury or death* to the operator or bystanders.

All machines have hazards associated with their operation. This stump grinder has certain special hazards, which you must be aware of. As an operator or owner you have a duty to be aware of these hazards and know preventive measures to take to avoid them. When reading this manual pay particular attention to avoiding these hazards.

In particular, be aware of the following:

- **Know location of buried electrical and other utility lines.**
- **Do not allow children or untrained adults to operate.**
- **Wear eye protection and other personal protection against flying rocks and debris.**
- **Check that cutter wheel teeth are secured, sharp and not missing.**
- **Do not operate if operator presence bar fails to stop engine upon release.**
- **Make sure no children or bystanders are within 75 feet of stump grinding operation.**
- **Protect cars, windows and other objects within 75 feet from flying debris.**
- **Be prepared for machine "kickback" when initially contacting the stump.**
- **Be aware of potential for carbon monoxide (CO) poisoning.**
- **Prevent fires/explosions from fueling.**
- **Do not attempt to perform adjustments, declog or clean unit while engine is running.**
- **Avoid burns from engine or hot exhaust.**
- **Avoid using in wet or icy conditions where falls may occur.**

Details about these hazards are found throughout the manual and are summarized at the end of the manual under "Important Safety Information."

STOP!

ADD ENGINE OIL: Your stump grinder comes fully assembled and requires only that you add engine oil to crankcase and fuel to tank.

INSPECT COMPONENTS: Closely inspect to make sure no components are missing or damaged. See the "Receiving Your Unit" section for instructions on whom to contact to report missing or damaged parts.

Any Questions, Comments, Problems, or Parts Orders
Call your dealer or NorthStar Product Support 1-800-270-0810

Hazard Signal Word Definitions






	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

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About Your Grinder

Thank you for purchasing or renting your NorthStar grinder!

Owner/Operator/Renter Training

Read and follow all instructions and safety precautions presented throughout this manual. A summary of important safety information can be found at the end of the manual. Keep this manual for reference and review. **If the owner of this unit is different than the operator, give a copy of this manual to any operator to read.**

Rental Companies

All persons to whom you rent/loan this grinder must have access to this manual and read it. Check the tube on the side of the unit to make sure a manual is inside. Advise all persons who will operate the machine to read it. You should also provide personal instruction on how to safely operate the grinder and remain available to answer any questions a renter/borrower might have. If videos are available, have renter watch training video.

Engine Instructions

For detailed Engine operation and maintenance information, always refer to the engine Owner's Manual furnished with the grinder.

Product Suitability

Before using, the user shall determine the suitability of this product for this intended use and assumes liability therein.

Your NorthStar grinder can be used to remove many tree stumps and exposed root systems close to ground level. By moving the blade in sweeping movements laterally over the top and front of the stump, you can gradually grind it away. Make sure you completely read and understand this manual before using the grinder for the first time. If you have any questions, contact your retail or rental dealer or NorthStar Product Support at 1-800-270-0810.

⚠ WARNING: Never attempt to cut on a slope exceeding 15°.

Exercise caution when cutting stumps on an incline, as the machine may shift or slide unpredictably. Never attempt to cut with the machine uphill or downhill from you as it may slide toward you or you may fall toward the machine. Cut only on a slope from the side.

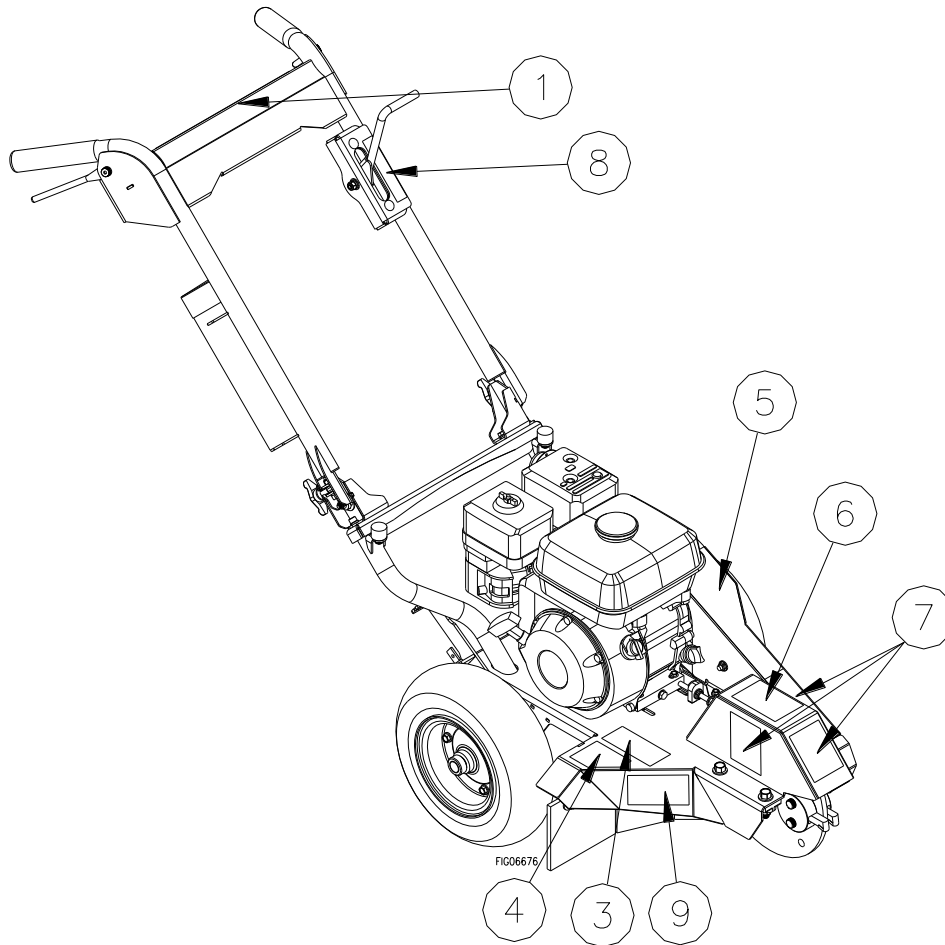
NorthStar is constantly improving its products. The specifications outlined herein are subject to change without prior notice or obligation. The purchaser and/or user shall assume liability for any modification and/or alterations of this equipment from original design and manufacture.

Contact NorthStar Product Support at 1-800-270-0810 for any questions about the appropriate use of this grinder or about optional accessories.

Warranty Registration

Please fill out and submit the warranty registration card so that we have your contact information for any future product literature or replacement parts you may need.

Safety Decal Locations



Reference #	Part #	Description
1	799614 decal set	Control Panel
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3		Poisonous Gas Hazard
4		Flying Debris Hazard (direction)
5		Personal Injury / Fire, Explosion / Entanglement Hazards
6		Flying Debris Hazard (person)
7		Amputation and Entanglement Hazard
8		Brake Lever
9	799952	Spark-Strike Warning

WARNING

ALWAYS make sure safety labels are in place and in good condition. If a safety label is missing or not legible, order new labels.

Safety Decals

WARNING

Flying Debris Hazard

*Flying debris can travel up to 75 feet.
 *Flying debris can also bounce off of this shield and hit nearby objects.
 *NEVER allow anyone in DANGER ZONE while grinding.
 *ALWAYS position machine to protect property (such as buildings and vehicles) from flying debris.
 *Rubber shielding is intended to direct discharge to protect operator's lower extremities.
 *Wear long pants and closed shoes, as well as eye and face protection.
 *Replace if shielding is worn or damaged.

WARNING

Flying Debris Hazard

*Stones, chips, and debris can cause serious injury or property damage.
 *Primary chip discharge is in the direction of the arrow.
 *However debris can fly 75 ft in any direction out the chute and bounce off objects and hit operator or bystanders.

WARNING

FIRE HAZARD

*Sparks can occur if blade/rotor strikes rocks, metal or other hard objects.
 *Do NOT use in high/very high fire hazard severity zones.
 *Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws and regulations relating to fire prevention requirements.

WARNING

**Amputation & Entanglement Hazard
Rotating Cutter**

Keep hands and feet away.
 Contact with rotating teeth will cause serious personal injury.
 NEVER operate without guards and covers in place.

WARNING

Poisonous Gas Hazard

This product gives off carbon monoxide, a poisonous gas that can kill you.
 - NEVER use in enclosed spaces EVEN if you run a fan or open doors and windows.
 - Only use OUTSIDE and far away from windows, doors, and vents.
 See product manual for more details.

WARNING

Throttle Lever

1. Check gas and oil levels.
 2. If unfamiliar with operation, training information (see Operator's Manual) can be obtained from your rental manager or distributor.
 3. Wear seat belt and have a safety harness while demonstrating proper use.
 4. Call 811 for utility marking 3 days before stump grinding. Trees can grow on top of & around underground wiring that was installed many years before a tree was planted.
 5. Use of the stump grinder requires considerable strength and endurance. It should be operated only by an adult who has adequate physical capability.
 6. Keep children away.
 7. Replace worn or unreadable labels.

WARNING

Fire Hazard

Hot exhaust fumes from engine can cause fire.
 Position muffler at least 7 feet from combustible objects, including vegetation and clothing.
 Do not change or add to exhaust system, fuel tanks, or fuel lines.
 Fire can result.

WARNING

Entanglement Hazard

NEVER remove guards or shields.
 NEVER operate this machine when wearing loose clothing, ties, or gloves with large loose cuffs or holes.
 ONLY operate with proper guarding of power shafts, pulleys, belts, & couplings.

WARNING

Brake Lever

KEEP BRAKE ON except when changing locations.
 STOP ENGINE & SET BRAKE ON before leaving operator's position.

CAUTION

Never attempt to use this machine without proper personal protection. When using this machine, you must wear the following:

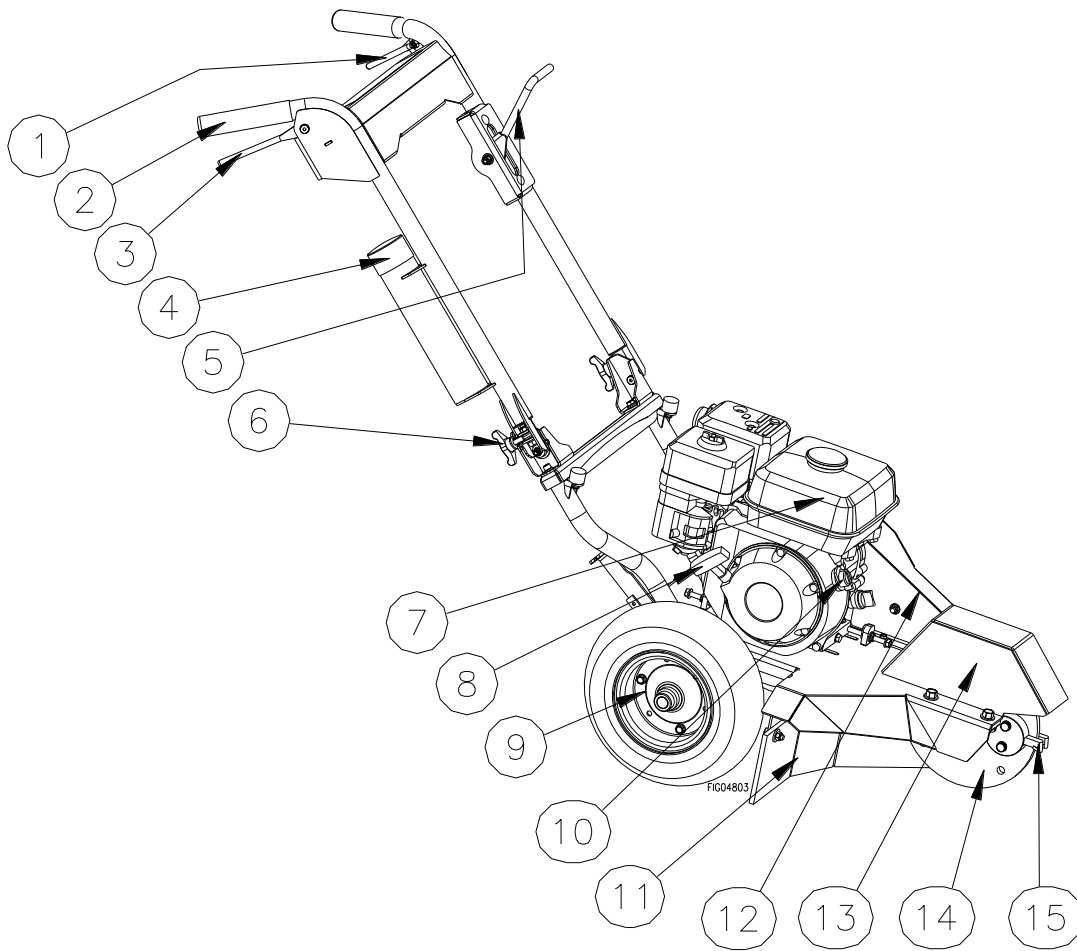
- * Eye protection
- * Ear and hearing protection
- * Heavy duty work gloves
- * Sturdy, non-slip footwear
- * Heavy duty, tight fitting clothing

To order replacement safety labels, call NorthStar Product Support at 1-800-270-0810.

Receiving Your Unit

1. Receiving Your Unit	
For all Units	<p>You should inspect the grinder immediately after you receive delivery. <i>See the "Machine Component Identification" section of this manual for a diagram of the grinder and its components.</i></p> <ul style="list-style-type: none"> • If you have missing or damaged components, please contact NorthStar Product Support at 1-800-270-0810.
New Unit: Truck Delivery	<p>Depending on your unit and model, it may have been shipped on a wooden skid, cardboard container or other appropriate method.</p> <ul style="list-style-type: none"> ♦ If any assembly is required. Separate assembly instructions will be included.
New Unit: From a Dealer	<p>Your unit should have been delivered completely assembled and ready to run. Read the "<i>Pre-Start Checklist & Procedures</i>" section, and verify that the unit has been properly "prepped" before initial use.</p>
Factory Delivery	<p>In these cases, your unit has been completely assembled, tested and pre-run. It should be ready for usage. See "Pre-Start Checklist and Procedures".</p>

Machine Component Identification



Reference #	Description
1	Throttle Lever
2	Handle Grip
3	Operator Presence Bar
4	Manual Storage
5	Brake Lever
6	T-Handle Knob
7	Engine
8	Starter Grip
9	Tire and Hub
10	Engine On/Off Switch
11	Discharge Flap
12	Belt Guard
13	Cutter Guard
14	Cutter Wheel Disc
15	Cutting Tooth

Operation

1. Pre-start Check List & Procedures

⚠ CAUTION:

Add engine crankcase oil. A new engine is shipped without oil. You must add the correct amount of oil to engine crankcase or engine will be damaged beyond repair.

Before starting the engine, you will want to make sure you have completed the following:

- 1. Marking Underground Utilities**
- 2. Checking Controls**
- 3. Checking Cutting Teeth**
- 4. Checking/Adding Oil**
- 5. Filling Stump Grinder Gasoline Tank**
- 6. Inspecting Fuel System for Leaks**
- 7. Locking Handle Bar**
- 8. Wearing Personal Protection**
- 9. Trimming Stump with Saw**
- 10. Clearing Area of People and Objects**
- 11. Working During Daylight**

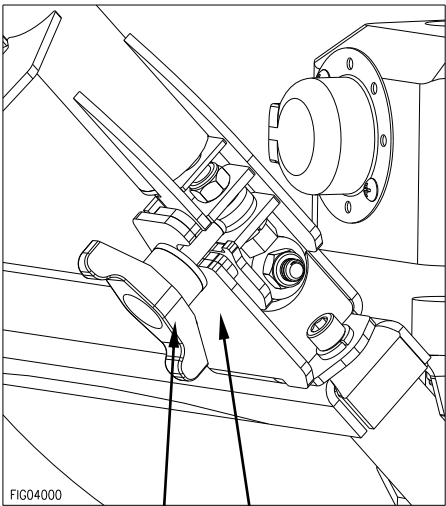
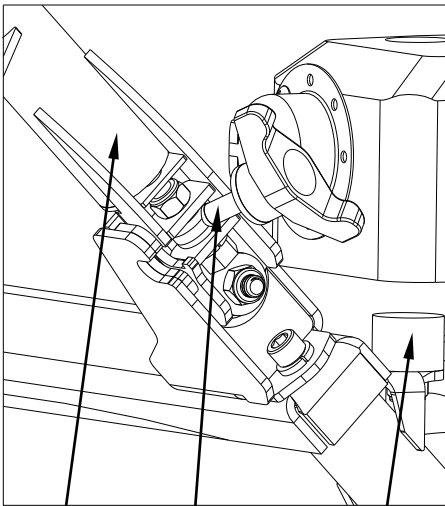
Each of these procedures is discussed in detail below.

Marking Underground Utilities	Call 811 or your local utility company to request marking utilities 3 days before stump grinding. Trees can grow on top of and around underground wiring that was installed many years before a tree was planted.
Check controls.	Check that: <ul style="list-style-type: none"> • All guards are in place and tight. • Operator presence bar switch is free moving. • Inspect tires and rims for looseness, damage, and tire inflation.
Check cutting teeth	Inspect cutting teeth for tightness and sharpness. Only use factory-approved parts for repair.
Check/add oil	<p>Check the oil level using the dipstick and add oil as needed.</p> <p>Using a funnel, add oil up to the FULL mark on the dipstick with the recommended oil type for your engine and expected ambient conditions. (See engine Owner's Manual for oil type and capacity, and more detailed oil check/fill instructions.)</p> <p>⚠ WARNING: Burn hazard Never open oil fill port while engine is running. Hot oil can spray over face and body.</p>

Operation

Fill stump grinder gasoline tank	<p>Check the gasoline level in the engine's fuel tank. If needed, fill tank with fresh unleaded gasoline from a portable container, after first reading the warnings and instructions below.</p> <ul style="list-style-type: none"> - Do NOT fill the gas tank to the top. Gasoline may spill when operating on a slope. - Do NOT overfill the gasoline tank. Allow at least 1" of empty space below the fill neck to allow for fuel expansion. <p>⚠ WARNING: Gasoline fire/explosion hazard Gasoline is highly flammable and explosive. Heat, sparks, and flames can ignite gasoline vapors, which can become widespread during fueling. A flash fire ignition and/or explosion could result and cause serious injury or death. The following conditions could result in gasoline ignition/explosion:</p> <ul style="list-style-type: none"> • gas vapor collection inside enclosures • static electric sparks • sparks from electric wiring, batteries, or running engines • sources of heat (such as a hot engine or exhaust) • open flames, including pilot lights
Inspect Fuel System / Check for Leaks	<p>Inspect fuel system & check for leaks BEFORE starting grinder.</p> <p>⚠ WARNING: Fuel leak hazard A leaking fuel line no matter how small can be the source of a fire or explosion when starting or operating the engine.</p> <ul style="list-style-type: none"> • Inspect the entire fuel system. <i>Look for:</i> Signs of leaks or deterioration, chafed or spongy fuel hose, loose connections, loose or missing fuel hose clamps, damaged gasoline tank, or defective gasoline shut-off valve. <p>If grinder is in an enclosed area and you smell gas, DO NOT start engine! DO NOT light a match. DO NOT flip on an electrical switch. Exit area immediately leaving doors open and call fire department.</p>
Locking Handle Bar	<p>Handle is capable of folding when not in use. To lock handle into place:</p> <ul style="list-style-type: none"> • Position T-handle knob and eyebolt so it is on the back side of the hinge bracket. • Tighten T-handle knob finger tight. • Repeat on other side <p>To fold handle:</p> <ul style="list-style-type: none"> • Turn T-handle knob counterclockwise to loosen. • Swing knob and eyebolt to the outside, on both sides of handle. • Carefully fold handle downward until it comes in contact with the rubber stops.

Operation

	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Locked Position</p>  <p>FIG04000</p> </div> <div style="text-align: center;"> <p>Unlocked Position</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>T-handle knob</p> <p>Hinge bracket</p> <p>Handle</p> <p>Eyebolt</p> <p>Rubber stop</p> </div>
Personal Protection	<p>Use approved protective clothing and approved protective equipment when using the machine.</p> <ol style="list-style-type: none"> 1) Always wear ANSI-approved and OSHA-compliant safety glasses with side shields and a full-face shield. 2) The use of ear plugs or other hearing protection device is also recommended for persons working within 15-20 feet of the running grinder for longer than a few minutes. Hearing can be damaged from prolonged, close-range exposure to the type of noise produced by this grinder. 3) Wear long pants to protect legs from sparks, hot engine and flying debris. 4) Never wear jewelry or loose-fitting clothing when starting or operating the grinder or any mechanical device. Loose or dangling apparel, jewelry or hair can become entangled in moving parts.
Trim Stump with Saw	Cut or trim the stump preferably to ground level using a power saw.
Clear Area	Dig away the earth and remove any stones near the tree stump or roots that may interfere with your work.
Work During Daylight Hours	Only use the machine in daylight or in well-lit conditions. Never operate the grinder after dark.

Operation

2. Starting the Grinder

After you have completed the pre-start checklist and procedures, you are ready to start the grinder.

The following directions detail how to start the engine of your grinder.

⚠ WARNING:

Never attempt to use the grinder without proper protective equipment, particularly eye protection and a full-face shield.

To start the grinder:

Note: For additional engine starting instructions see your Honda engine manual.

- 1) Lock handle in the upright position.
- 2) Place stump grinder into position with cutting wheel near the front-top edge of the stump.
- 3) Use brake lever on handle to lock the wheel brake.

⚠ WARNING:

Stay in the OPERATOR POSITION (behind the machine) while actuating controls. Never leave grinder unattended.

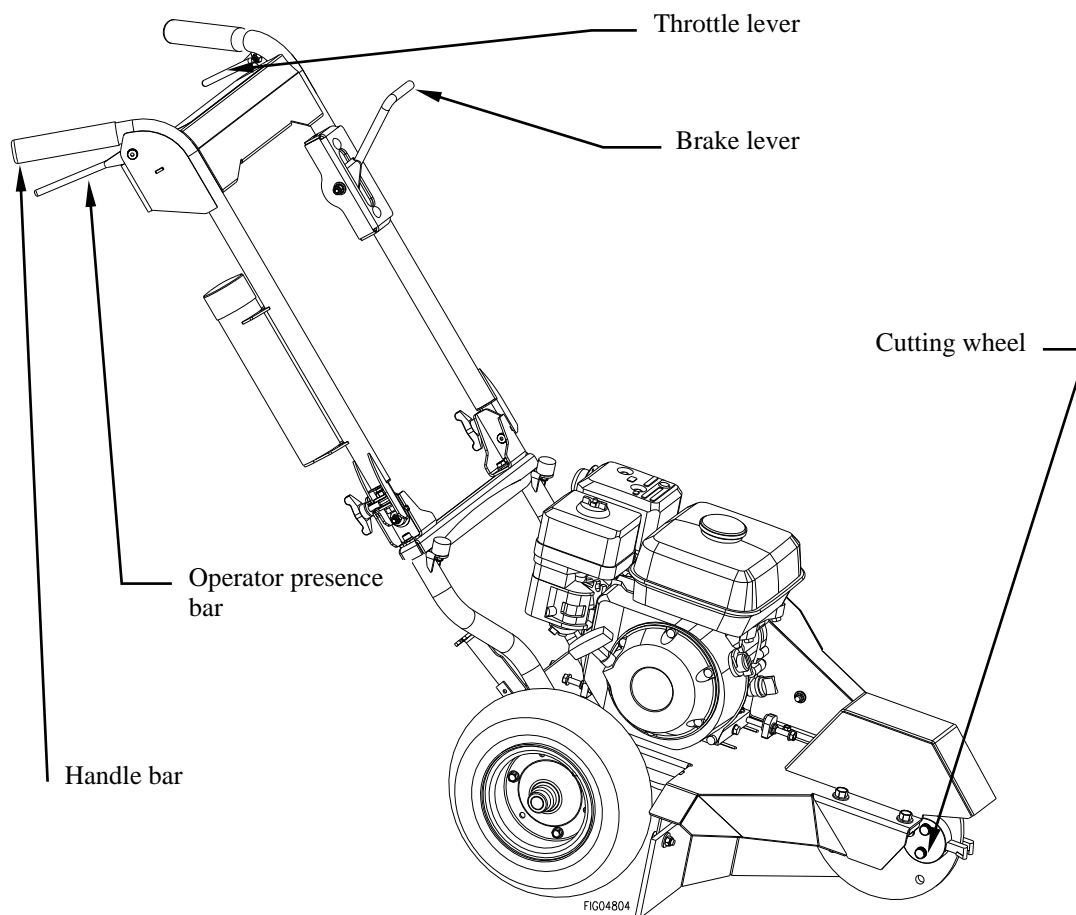
- 4) For cold engine, move choke lever to the CLOSED position. To restart a warm engine, leave choke lever in OPEN position.
- 5) Turn engine switch to the ON position.
- 6) Grip operator presence bar and handle bar together in left hand.

⚠ WARNING:

A rotating cutting wheel is very dangerous. Stay at the controls and keep others away until you are sure the blade has come to a complete stop.

- 7) Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently. If the choke lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.
- 8) If engine does not start, repeat steps 5-7.
- 9) Press down on handle bar to lift cutter wheel off the ground.
- 10) Grip throttle lever and handle bar together in left hand. Centrifugal clutch will engage and cutter wheel will begin to rotate.

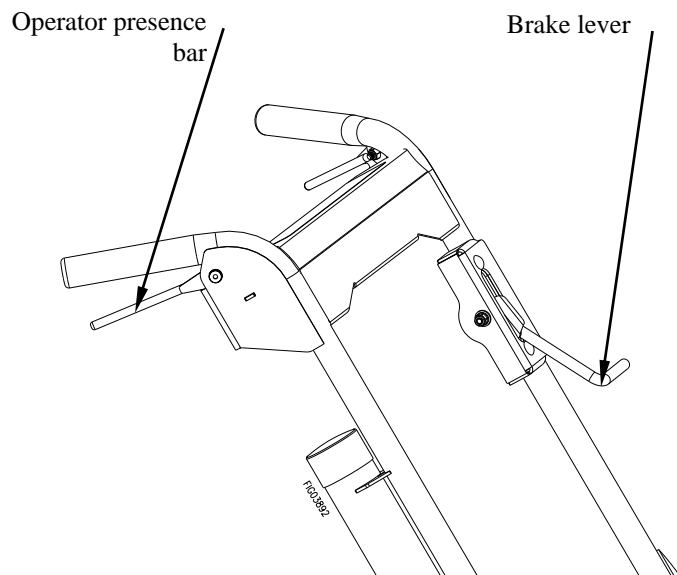
Operation



3. Stopping the Engine

Stop the engine using the following steps:

1. While holding cutting wheel off the ground, release the operator presence bar. The engine will stop. Wait until the cutter wheel completely stops. Lower the cutter wheel so it is resting against the ground.
2. Make sure brake is set before leaving the controls, particularly if you are on an incline.
3. Turn engine switch to OFF position.
4. Allow the engine to cool for at least 5 minutes before releasing brake and moving to storage or transporting. A hot engine can be a fire hazard.



Operation

4. Grinding the Stump

⚠ WARNING: Flying Debris Hazard

Stones, chips, and debris can cause serious injury or property damage. Debris can fly 75 ft in any direction out of the chute. They can bounce off any fixed objects as well and hit operator, bystanders or breakable objects.

1. Set/engage the brake.
2. Pivot the grinder toward the side of the stump, with a fairly light touch feed straight into the stump. As soon as you feed in, start to swing to the side until you feel the wheel drop off the edge of the stump. Change direction and swing back the other way until you feel it reach the other edge of the stump. As you swing to the side listen to the engine. Provide enough feed to give it a moderate load. If you hear any belt or clutch squealing you are pushing too hard. If you can't swing it to the side, raise the grinder up.

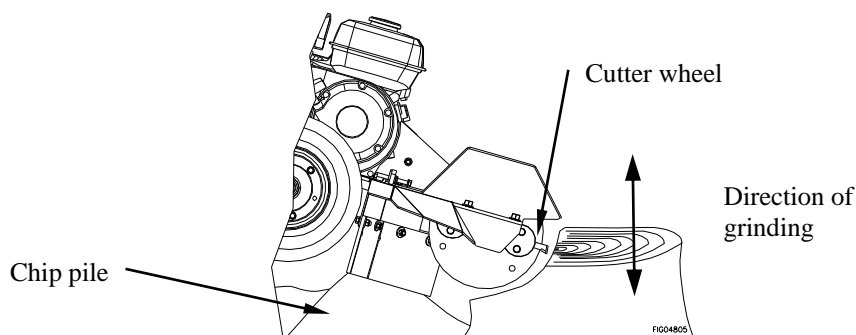
You can cut roots off by plunging straight through them.

⚠ WARNING: Rotating cutter wheel.

Keep hands and feet away. Contact with wheel rotating teeth will cause serious personal injury.

Chip Build-up

3. When grinding larger stumps, chips may begin to build up under the wheels.
4. Release brake and pull machine towards you so that the "chip pile" is directly under the cutting wheel.
5. Drop cutter wheel down on "chip pile", material will be discharged from machine area.



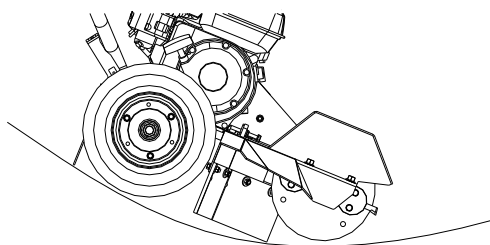
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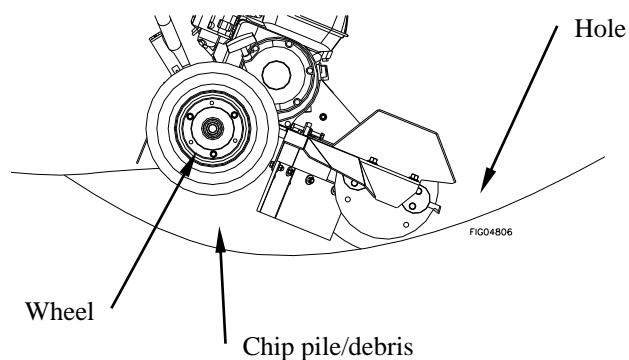
6. On these larger stumps, DO NOT allow grinder wheels to drop into stump hole. If a hole is in the way of your progress, fill it with chips or change position.

Operation

NOT CORRECT



CORRECT



⚠ WARNING:

Stop engine and set brake before leaving operator's position. **KEEP BRAKE ENGAGED** except when changing locations.

7. When finished, stop the machine.
8. Pull machine away from stump, and rake chips away from stump.

5. Refueling

- 1) Before removing gas cap, turn engine off and allow to cool for at least two minutes.

Note: A running or hot engine can ignite fuel.

- 2) Remove grinder gasoline cap.
- 3) Add gasoline through the fill opening:
 - Use only an UL-approved portable gasoline container to transfer the gasoline to the grinder's tank.
 - Be aware of safety warning and instructions below for avoiding static electric caused fires.
 - Do not overfill.

⚠ WARNING:

Static electric spark hazard

A static electric spark can explosively ignite gasoline vapor, resulting in a flash fire that could cause serious injury or death. See "Special Safety Information on Static Electricity" at end of this manual.



- 4) Clean up gasoline spills /splashes immediately.
 - If possible, move the grinder away from spilled gasoline on the ground.
 - Wipe up spilled gasoline, and wait 5 minutes for excess gasoline to evaporate before starting engine.
 - Gasoline soaked rags are flammable and should be disposed of properly.

Operation

- If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.

5) Replace gasoline cap securely before starting engine.

6) Store extra gasoline in a cool, dry place in an UL-approved, tightly sealed container.

7) Filling towable units or portable containers at service stations:

Even if you have a towable unit, avoid static electric sparking while filling the gasoline tank:

- Never fill the grinder's gas tank directly from the fuel pump. The grinder's tank is not grounded and high velocity flow from the pump can cause static electricity build-up. Use an approved portable container to transfer gas to the grinder's tank.
- Use a portable container made of metal or conductive plastic. This is preferred because it dissipates static charge to ground more readily.
- Never fill a portable gas container while it is sitting inside a vehicle, trailer, trunk, or pick-up truck bed. ALWAYS place container on the ground to be filled.
- Keep nozzle in contact with container while filling. Do not use a nozzle lock-open device.

6. Storing the Machine

When you are finished using the grinder and it has cooled, you must:

- Cool engine before storage.
- Clean the grinder.
- Inspect for worn or damaged parts.
- Choose covered storage location.
- Prevent accidental starting.
- Plan on exercising the engine at least monthly unless the grinder is prepared for long-term storage.

Detailed instructions are provided below.

Cool engine	Let engine cool for at least five minutes before storing. A hot engine can be a fire hazard.
Clean grinder	Clean all grease, dirt, mud and other foreign matter from the machine. Touch up paint damage to prevent rust.
Inspect grinder	Inspect the machine for worn or damaged parts and tighten any nuts or screws that may have become loose. Pay particular attention to the cutting teeth.

Operation

Choose a storage location	Store the grinder in a location that is: <ul style="list-style-type: none"> - Clean and dry. - Away from sources of heat, open flames, sparks, or pilot lights, even if the grinder's gas tank is empty. Residual gasoline could ignite. - Away from extreme high or low temperatures. - Cover it for extra protection.
Remove spark plug	Remove spark plug , in order to ensure the grinder cannot be started in a storage location or by untrained persons or children.
Start grinder every 4 weeks	<p>The grinder should be started regularly. At least every four weeks, start the engine and let it run for 10 to 15 minutes.</p> <p>Monthly exercising of the grinder will dry out any moisture that has accumulated, lubricate cylinders, and clean out old gas in the carburetor. Moisture, old gas, and dry mechanical parts cause deterioration in stored engines.</p>
Prepare engine for long term (seasonal) storage if needed	<p>If you will not be able to start the grinder regularly, you must prepare the engine for long term storage to prevent gum deposits from forming and causing malfunction of the engine.</p> <p>Prepare engine for long term storage by:</p> <ul style="list-style-type: none"> ○ Removing all gasoline from the tank and carburetor <li style="text-align: center;"><u>OR</u> ○ Adding fuel stabilizer to the gasoline (following manufacturer's instructions) <p style="margin-left: 40px;"><u>Fuel stabilizer steps:</u></p> <ol style="list-style-type: none"> 1. Ensure gas tank is full. 2. Add fuel stabilizer to fuel tank. 3. Run engine at least 10 minutes after adding stabilizer to allow it to enter the fuel system. 4. Shut off engine 5. Disconnect spark plug wire and remove spark plug 6. Add one teaspoon oil through spark plug hole 7. Place rag over spark plug hole and turn starter (or pull the recoil) a few times to lubricate the combustion chamber. 8. Replace spark plug, but do not reconnect the spark plug wire. <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;"> <p>⚠ WARNING: Gasoline fire/explosion hazard</p> <p>Gasoline is highly flammable and explosive. Drain the fuel into an approved container OUTDOORS and far away from open flame. NEVER store an engine with fuel in the tank indoors or in poorly ventilated spaces where fuel vapor can come in contact with</p> <ul style="list-style-type: none"> • static electric sparks • sparks from electric wiring, batteries, or running engines • sources of heat (such as a hot engine or exhaust) • open flames, including pilot lights </div>

Maintenance & Repair

WARNING

ALWAYS shut off the engine, make sure the engine is cool, and disconnect the spark plug before cleaning, adjusting, or servicing the grinder. Make sure all guards and shields are replaced before using.

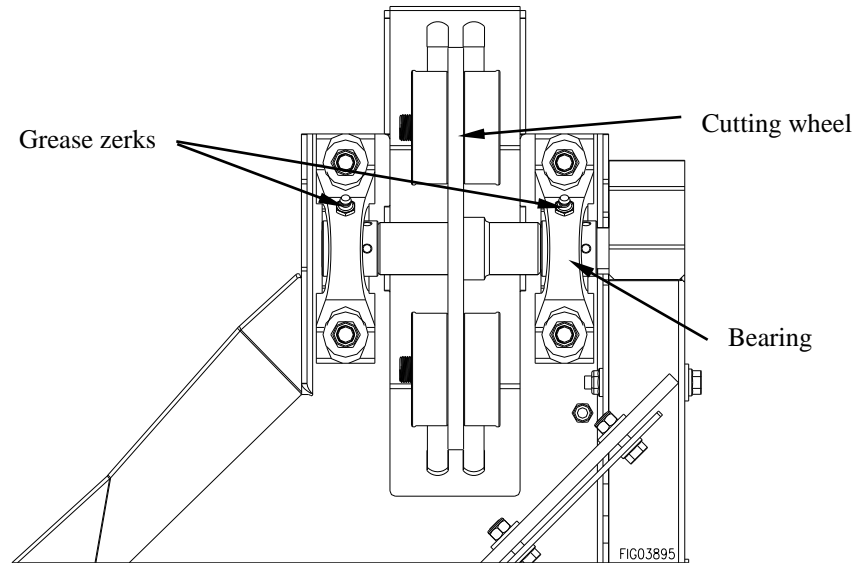
Maintenance	
Perform regular maintenance	Perform periodic maintenance as directed in this manual to keep the grinder in safe working condition.
Follow safety rules	<p>Read and follow these safety rules whenever you will be servicing the grinder:</p> <ul style="list-style-type: none"> • Turn off grinder. Always turn off grinder and remove spark plug or spark plug wire before working on the engine or grinder to prevent accidental starting. • Replace guards/shields. Make sure all guards and shields are replaced after servicing the grinder. • Burns. Muffler will be hot even after unit is stopped. Allow unit to cool before servicing. • Repair. Major service, including the installation or replacement of parts, should be performed only by a qualified electrical service technician. Obtain factory approved parts from NorthStar Product Support at 1-800-270-0810. • Replacement parts. If a part needs replacement, only use factory approved repair parts. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the grinder and will void the warranty.
Perform engine maintenance	<p>Perform engine maintenance as specified in the engine owner's manual.</p> <p>Engine maintenance items include:</p> <ol style="list-style-type: none"> 1. Oil and oil filter changing 2. Air filter check/replacement 3. Spark plug cleaning and replacement 4. Fuel filter check/replacement 5. Fuel tank cleaning.
Inspect fuel system / check for leaks	<p>Inspect the fuel system and check for leaks on a regular basis.</p> <p>Look for: signs of leaks or deterioration, chafed or spongy fuel hose, loose connections, loose or missing fuel hose clamps, damaged gasoline tank, or defective gasoline shut-off valve.</p>

Maintenance & Repair

Lubricate

Cutter shaft bearings should be greased.

The cutter shaft bearing is greased by pumping grease into zerks located on the housing of the bearing. Lubricate after every 20 hours of use.



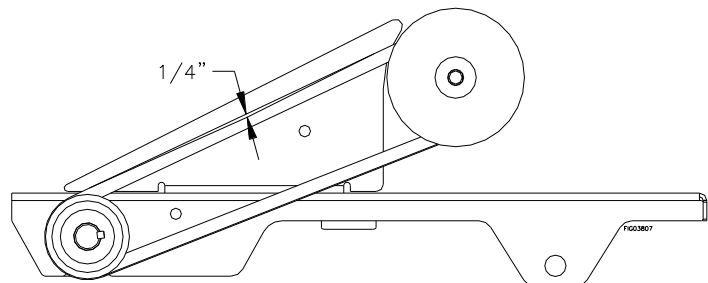
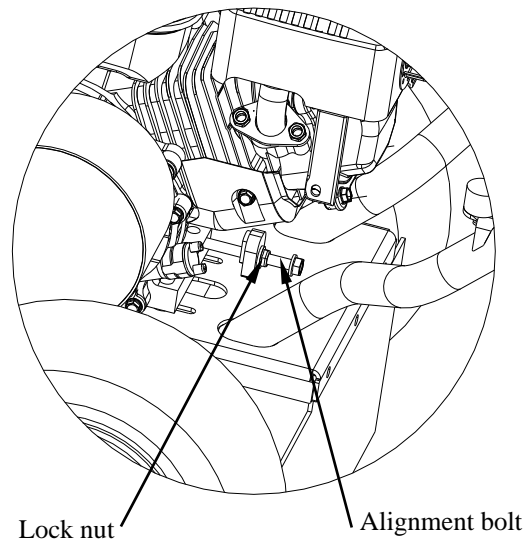
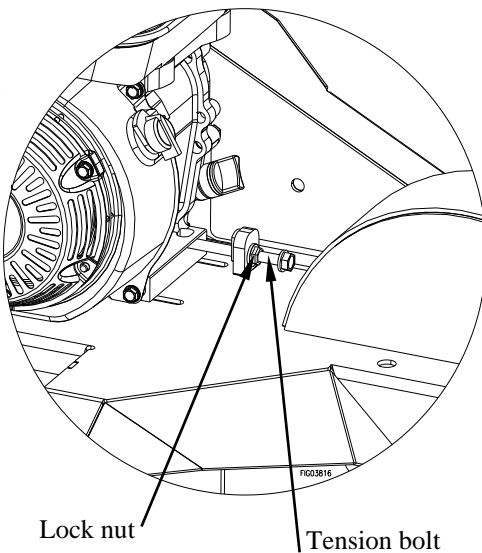
Grease Specification	
Soap Type	Lithium Complex
NLGI Grade	#2
Dropping Point	230°C (446°F)
Additives	Corrosion and Oxidation inhibitors, EP optional
Viscosity Index	80 Minimum

Maintenance & Repair

Belt Tension Adjustment

Note: Belt tension and alignment are inter-related. Do not adjust one without checking the other.

1. Remove belt guard.
2. Loosen (4) engine base (mount) bolts.
3. Loosen lock nuts on tension bolt and alignment bolt.
4. Turn tension bolt clockwise to increase belt tension and counterclockwise to decrease belt tension.
5. Check that the pulleys are aligned using a straight edge. To achieve proper pulley alignment you may need to adjust the alignment bolt. This bolt will serve as an adjustment point to counter the tension in the belts, which may cause the engine pulley to be misaligned with the cutter wheel pulley. Note: Set screws in pulley have a torque specification of 14 ft/lbs.
6. Belt tension is proper when a 5 to 7lbs force will deflect the belt 1/4" at the midpoint.
7. Retighten all loosened nuts and bolts.
8. Reassemble belt guard.



Note: New belts require a "break-in" period of approximately 10 hours. Readjustment may be necessary after "break-in."

Note: Use only factory recommended belts. Contact your NorthStar dealer.

Maintenance & Repair

Setting and Sharpening Teeth

Among the most critical elements of the stump grinder is the cutting wheel. It is also the most subject to damage and wear. In the course of grinding stumps it not only makes contact with the wood, but also encounters numerous abrasives and objects in the stump's environment, such as dirt, stones, large rocks and buried scrap.

The loss and wear of cutting teeth can significantly impair the efficiency and performance of the stump grinder. Therefore, it is important to make frequent inspections of the condition of all the cutting teeth and to sharpen or replace any damaged or worn teeth. Sharpening the teeth before excessive wear will result in longer lasting teeth and better performance.

Sharpening Teeth

NorthStar cutting teeth are tipped with heavy-duty carbide. Carbide retains its sharpness longer; cuts faster and smoother, and can withstand heat better. Though carbide is tremendously hard, it is also reasonably brittle. Sharpen the teeth before excessive wear or if a chip is noticed. Less material will have to be removed and the teeth will last longer with more frequent sharpenings.



A properly sharpened carbide edge undergoes very little pressure in cutting. A thin, sharp edge slices it way through the material, minimizing resistance.



A rounder dull edge creates high cutting pressures because it must force its way through the material.

⚠ WARNING:

Carbide dust is harmful if inhaled. A respirator and safety glasses must be worn while sharpening.

Grinding Equipment

Existing grinding equipment plus a special grinding wheel is all that is needed to grind the teeth.

Items needed:

- Any type bench or pedestal grinder.
- Coarse grinding wheel.
- "Green wheel" for carbide grinding.

General Grinding Tips

1. Teeth can be ground freehand since precision is not important. Any variance between teeth will not be noticed and a tooth that is ground shorter in length can be adjusted when mounting.

Maintenance & Repair

2. If possible, set the grinder up with a coarse wheel on one side, and the "Green Wheel" on the other side.
3. Using the "Green Wheel", grind the end of the carbide until the edge is once again sharp. Avoid grinding on the top of the carbide, which would reduce its thickness and weaken it, making it more susceptible to cracking and chipping.

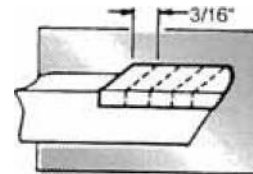
4. As the end of the carbide is ground away, you will have to grind a relief on the square steel shank. The steel must be ground with the regular coarse grinding wheel and not the "Green Wheel".



5. Although the angle is not critical, always grind the tooth so that there is a relief under the carbide edge.

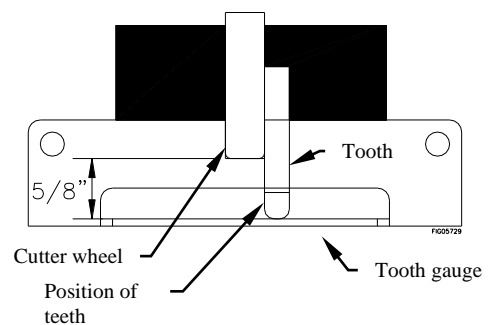


6. The tooth may be ground until the carbide has approximately 3/16" remaining.



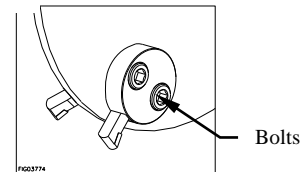
Installing Teeth

1. When installing teeth on the cutting wheel, be sure that all teeth are extended an equal length beyond the wheel. A tooth gauge (part # 793190) has been provided with the grinder for this purpose.



2. After teeth are located in position, lock by tightening the (2) bolts in each tooth pocket.

Tighten bolts 100 to 110 ft-lbs. torque.

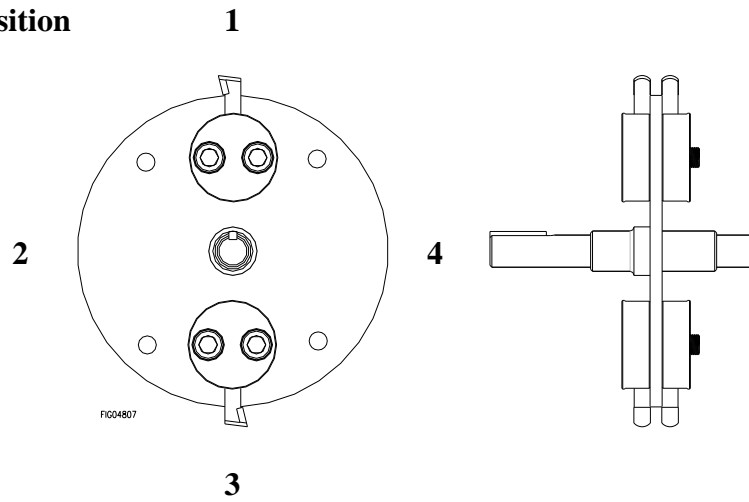


⚠ CAUTION:

Cutter wheel will be out of balance and should never be run with a tooth missing or a badly worn tooth.

Maintenance & Repair

Position



NorthStar stump grinders are equipped with reversible pockets. When reversing pockets, position them in the same exact location. This will ensure the cutter wheel will remain in balance.

Use only pockets and teeth recommended by NorthStar.

Maintenance & Repair

Maintenance Schedule

⚠ CAUTION:

Before attempting any maintenance, be sure that the engine is shut off, and spark plug wire is removed, and the engine is cool to the touch!

Item (What to check or action req'd)	Daily	Each Use	10 hours	20 hours	40 hours
Bearings, Shaft - Grease				X	
Belt Tension - Tension					X
Bolts - Tightness			X		
Engine – See manual					
Gasoline – Amount		X			
Safety Switches – Operation		X			
Warning Decals – Legible	X				
Tires, Flaps – Condition	X				
Wires, Cables – Condition		X			
Cutter Teeth - Sharpness		X			

IMPORTANT:

If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the grinder.

**Contact NorthStar Product Support at 1-800-270-0810
for any questions, problems, or parts orders.**

Specifications

	296026
ENGINE	
Make	Honda
Model	GX160UT1QX2
CC Rating	160cc
GENERAL	
Weight	131 lbs. (59.4 kg)
Length /{ folded}	59"/{36.4"}, 150 cm/{92.5 cm}
Height /{ folded}	41"/{24.5"}, 104 cm/ {62.2 cm}
Width	24" (61 cm)
RPM Operating	3600 RPM
Type of Fuel	Gasoline
Starting	Recoil
Oil Sensor	Yes
CUTTER WHEEL	
Diameter	9.6" (24.4 cm)
Thickness	3/8" (.95 cm)
Bearings (Dia.) (2)	1" (2.5 cm)
Teeth Pockets	Reversible
Teeth (4)	Carbide tips
Cutter Wheel RPM	4700 RPM
Drive	Direct Belt Drive
	AX37 Gates belt
	Centrifugal Clutch
CUTTING CAPACITY	
Above Grade	10" (25 cm)
Below Grade	9" (23 cm)
Stump Diameter	No Limit
GROUND TRAVEL	
Transportation	Push/Pull Type, Non-towable
Drive	Wheel Hub
	12.5", 410-350 x 6
Brake	Incremental Locking Pin

Summary of Important Safety Information

This section provides a summary of the various safety procedures and measures that have been presented throughout the manual. Keep this summary handy and refer to it to refresh your memory about how to safely use your grinder.

WARNING

Carefully read and make sure you understand the following safety information before using the grinder. Improper use or maintenance of the grinder can result in ***serious injury or death*** from ***fire/explosion, carbon monoxide poisoning, lacerations, entanglement or burns***. Damage can also occur to windows, siding, vehicles, and bystanders from chips and debris which can become projectiles.

General

- **Read manual.** Read this Owner's Manual and the engine Owner's Manual completely before attempting to use and service the grinder. Serious injury or death can result if safety instructions are not followed.
- **Instruct operators.** The grinder owner or rental company must instruct all operators in safe grinder set-up and operation. Do not allow anyone to operate the grinder who has not read the Owner's Manual and been instructed on its safe use. Make sure Owner's manual is within the attached storage tube on the grinder.
- **Adults only.** Only trained adults should operate and service the grinder. Do not let children operate.
- **Under the influence.** Never operate, or let anyone else operate, the grinder while under the influence of alcohol, drugs, or medication.
- **Intended use.** Carefully read about and understand the intended use of this grinder. Do not use for other purposes, as unforeseen hazards or equipment damage may result.
- **Controls and safety labels.** Learn how to use the machine and its controls safely. Understand and follow all safety labels.
- **Weather.** Never use in foul, bad or questionable weather, which causes a slippery ground condition.

Prohibition Against Modifications

Never modify or alter the grinder in any way. Modifications can create serious safety hazards and will also void the warranty.

- **Fuel/exhaust system.** Never modify the exhaust system, fuel tanks, or fuel lines. Carbon monoxide poisoning, fire, or explosion could result.
- **Guards.** Do not operate grinder unless all guards and cover shields, which prevent access to moving parts and pinch points, are in place. Failure to guard the power transmission mechanisms *may result in serious injury or death*.

Safety – Before Use

Know how to operate

- **Review safety rules.** Before use of this grinder, review the "Rules for Safe Operation."
- **Know how to operate.** Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the grinder quickly if needed.
- **Utility marking.** Call 811 for utility marking 3 days before stump grinding. Trees can grow on top of and around underground wiring that was installed many years before a tree was planted.

Getting Ready

- **Flying debris.** Clear area of objects such as stones, toys, steel wire, etc. that could become caught in moving machine parts and ejected as a projectile.
- **Operate OUTSIDE only – dangerous carbon monoxide exhaust!** Grinders give off carbon monoxide exhaust, a poisonous gas that can kill. You CANNOT smell it, see it, or taste it. ONLY run grinder OUTDOORS and at least 20 feet from the home, away from windows, vents and air intakes, to allow proper ventilation. If you start to feel sick, dizzy, or weak while using the grinder, shut off the engine and get to fresh air RIGHT AWAY. NEVER run grinder engine inside homes, garages, sheds, or other semi-enclosed spaces. These spaces can trap poisonous gases.

Summary of Important Safety Information

- **Cooling ventilation.** The grinder needs adequate, unobstructed flow of air to allow for proper cooling of engine and grinder head. Do not allow debris to accumulate and block airflow.
- **Transporting.** During transporting, take precautions to make sure stump grinder will not tip over and cause a fuel leak hazard.
- **Hot exhaust - fires.** Exhaust from engine can be extremely hot and cause fire. Position muffler at least 7 feet from combustible objects during operation.
- **Fire extinguisher.** Keep a fire extinguisher rated "ABC" by the National Fire Protection Association nearby is always recommended when using gasoline operated machinery. Keep it properly charged and be familiar with its use.

Personal protective equipment

- **Hearing protection.** The use of ear plugs or other hearing protection device is recommended for those in close proximity to the grinder while it is operating.
- **Eye protection.** Wear ANSI approved eye protection when operating the grinder.
- **Face protection.** A helmet with a full face visor or mesh visor with protective glasses is recommended.
- **Loose / dangling.** Loose or dangling apparel, jewelry or hair can become entangled in moving parts. Never wear jewelry or loose-fitting clothing when operating the grinder.
- **Long pants.** Wear long, heavy-duty pants to protect legs from ejected materials.

Gasoline Safety

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Use extreme care when handling gasoline:

- **Fuel outdoors.** Fill fuel tank outdoors – never indoors. Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.
- **Use approved container.** Never pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use an UL approved fuel container to transfer gas to the engine.
- **Running / hot engine.** A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. Stop the engine and allow to cool at least two minutes before adding fuel.
- **Heat / flames / sparks.** Keep sources of heat, flame, or sparks away while adding fuel.
- **Don't fill to the top** DO NOT overfill the gas tank. Allow at least 1" of empty space below the fill neck to allow for fuel expansion and operation on slopes.
- **Don't fill to the top.** Do not fill the gas tank to the top. Gasoline may spill when operating on a slope.
- **Replace cap.** Replace gas cap securely before starting engine.
- **Spills.** Clean up fuel spills immediately. Move grinder away from spilled fuel on the ground. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. Gas soaked rags should be disposed of properly.
- **On skin / clothes.** If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
- **Inspect fuel system.** Check fuel system on a regular basis. Look for signs of leaks, deterioration, chafed or spongy fuel hose, loose or missing fuel hose clamps, damaged fuel tank, or a defective fuel shut-off valve. Do not start grinder until needed repairs have been completed.
- **Gasoline storage.** Store gasoline in a cool, dry place in an UL-approved, tightly sealed container away from children.

Safety – During Use

- **Safety equipment / controls.** Always operate the grinder with all safety covers, guards, and barriers in place and in good working order, and all controls properly adjusted for safe operation.
- **Controls.** Stay in the OPERATOR POSITION while actuating controls.
- **Know how to stop.** Know how to stop the grinder quickly if needed by releasing the operator presence bar. If this does not work, do the following in order until unit is stopped. 1. Push the stop button on the control panel. 2. Use on/off switch on engine (or ignition switch on electric start models). 3. Engage full choke by flooding the engine.
- **"Kickback".** Machine can experience significant "kickback" when operating or first coming into contact with the stump.
- **Slipping/Falling.** Operating in wet or icy conditions could lead to losing your footing and slipping or falling.
- **Damaged.** Do not operate the grinder with damaged, missing, incorrectly adjusted, or broken parts.
- **Check for gas leak before starting.** After opening gasoline valve, smell for gas before starting engine. If you smell gas, DO NOT start engine. DO NOT light a match. DO NOT flip on an electrical switch. Exit area immediately and call fire department.

Summary of Important Safety Information

- **Carbon monoxide exhaust.** The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. If you start to feel sick, dizzy, or weak while using the grinder, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- **Other exhaust dangers.** This product contains or emits chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Avoid inhalation of exhaust.
- **Smoking/sparks.** Never smoke near the running grinder, and never operate near sources of sparks or flames.
- **Hot muffler.** Never touch hot muffler or hot exhaust manifold. Exhaust and engine parts can be very hot and will burn you.
- **Machine's moving parts.** Keep hands, feet, and apparel away from drive belts, cutter wheel, and other moving parts. Never remove any drive belt or guard while the unit is operating. Contact with belt or rotating teeth will cause personal injury.
- **Refueling.** DO NOT refuel the engine until it has cooled at least two minutes.
- **Malfunction during operation.** Always shut the machine off if any unusual noise or vibration occurs.
- **Vibration.** Overexposure to machine vibration on a daily basis may lead to circulatory or nerve damage.
- **Adjusting / repairing.** Always turn off grinder and remove spark plug or spark plug wire before working on the grinder to prevent accidental starting.

Safety – After use

- **Cool engine before storing.** Let engine cool for at least five minutes before storing. A hot engine can be a fire hazard.
- **Shut off fuel supply.** Make sure gasoline shut-off valve is in the OFF position.
- **Prevent accidental starting.** When grinder is not in use, remove key from starter (electric start engines) and secure in a safe location, or remove spark plug in order to ensure that grinder cannot be started in a storage location or by untrained persons.
- **Storage location.** Store the grinder in a dry location away from sources of heat, open flames, sparks or pilot lights – such as water heaters, space heaters, furnaces, clothes dryers, or other gas appliances – EVEN IF the grinder's gas tank is empty. Residual gasoline could ignite.
- **Exercise regularly.** Exercise grinder every four weeks to dry out moisture that accumulates in the windings. If grinder cannot be exercised on a regular basis, prepare grinder for long term storage.

Safety - Inspection/Maintenance

Inspect and maintain your grinder on a regular basis and repair as needed to keep it in safe working condition:

- **Turn off grinder.** Always turn off grinder and remove spark plug or spark plug wire before working on the engine or grinder to prevent accidental starting.
- **Replace guards / shields.** Make sure all guards and shields are replaced after servicing the grinder.
- **Burns.** Do not touch hot muffler. Muffler will be hot even if unit is stopped. Allow unit to cool before servicing.
- **Replacement parts.** If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the grinder and will void the warranty.

Special Safety Information on Static Electricity

Static electricity and filling gasoline:

Static electricity can initiate from ungrounded gasoline tanks or containers, from flowing gasoline, and from persons carrying a static electric charge

Static electricity on numerous occasions has explosively ignited gasoline vapors that were present during fueling processes, resulting in serious burns to nearby persons. To avoid static electricity while fueling, certain steps must be followed before and during the fueling process in order to minimize and safely dissipate static charge build-up.

Filling Portable Containers at Service Stations:

Use a portable container to fill grinder tank. Never fill the grinder's gas tank directly from the service station's fuel dispenser pump – the grinder's tank is not grounded and the high velocity flow of gasoline from a fuel pump can cause static electric build-up. Use an approved portable container to transfer gasoline to the grinder's tank.

- ***Use a portable container made of metal or conductive plastic.*** It will dissipate charge to ground more readily.
- ***Fill container on the ground.*** Never fill the portable gas container while it is sitting inside a vehicle, trailer, trunk, or pick-up truck bed. ALWAYS place container on the ground to be filled.
- ***Touch a grounded metal object before starting.*** Always dissipate static charge from your body before beginning the fueling process by touching a grounded metal object at a safe distance away from fuel sources.
- ***Keep nozzle in contact with container.*** Keep fuel dispenser nozzle in contact with the portable container at all times while filling at a service station. Do not use the nozzle lock-open device on the dispenser hose.

About static electricity and fueling

Many common objects can accumulate and retain a static electric charge. Objects made of non-conductive materials (e.g. plastics) easily accumulate and retain static electric charge, as can objects made of conductive material (e.g. metal, water) if they are not electrically grounded. The static electric charge on an object, such as a human body or plastic fuel tank/container, can reach as high as several thousand volts!

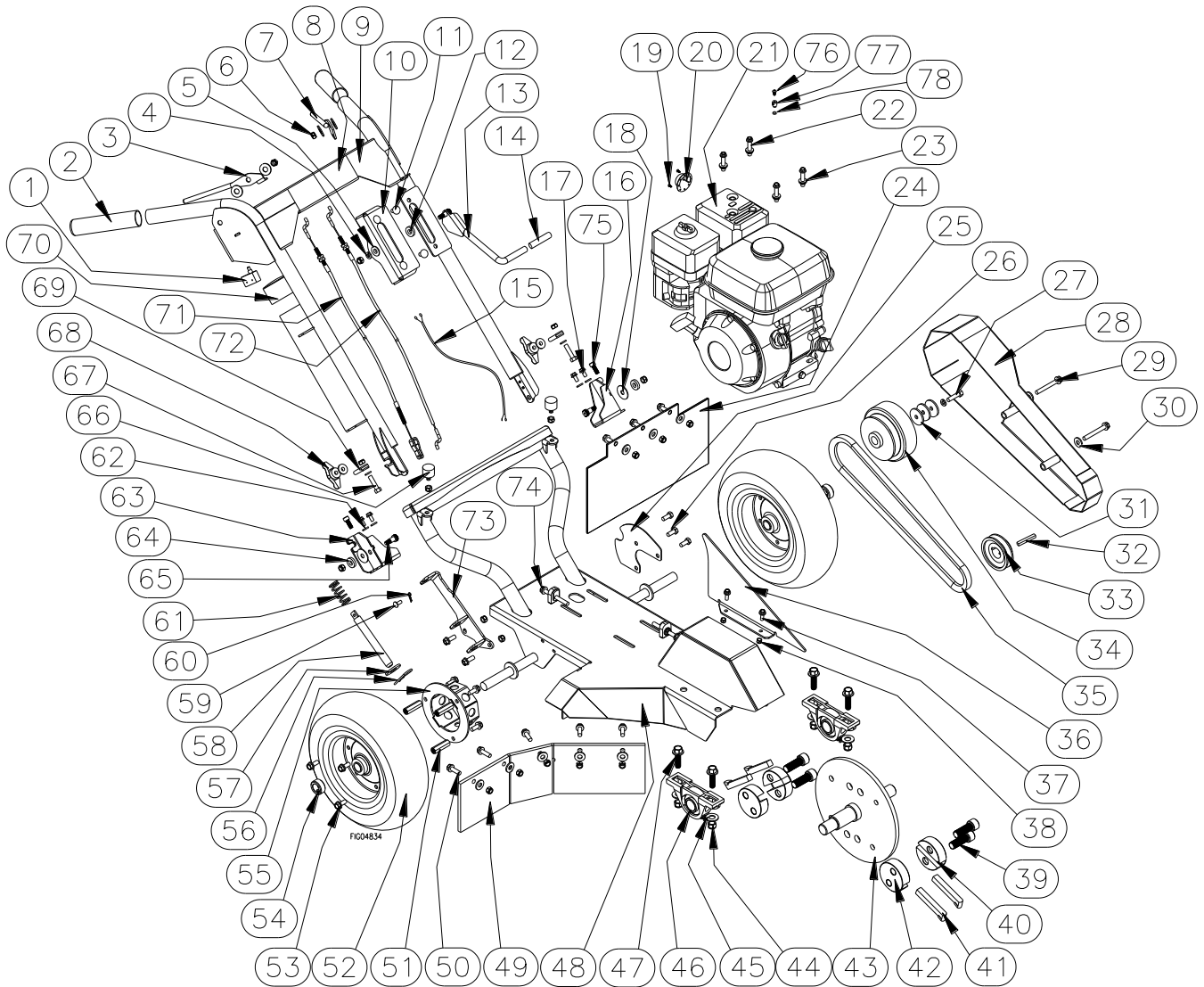
A static electric spark can be generated if the static electric charge stored on an object "jumps" to another, less charged object. Such a spark can ignite invisible gasoline vapors that are present during fueling situations.

Typical sources of static electric hazards during fueling

The following objects can accumulate a static electric charge and cause an ignition spark in typical fueling situations:

- **Ungrounded tanks/containers.** Any ungrounded fuel tank or container can accumulate a static electric charge as a result of contact with other objects or friction during transportation. This static electricity can discharge as a spark to the grounded gasoline dispenser nozzle, as the nozzle is first brought close to the tank/container at the beginning of the fueling process.
- **Flowing gasoline.** Most people are not aware that gasoline accumulates static electric charge while flowing through a hose or pipe. This charge then transfers to and accumulates in the gas tank or container that is being filled. The total amount of charge accumulation depends on the amount of gas pumped into the container, the speed with which it is pumped, and whether or not the tank/container is grounded. If sufficient static electric charge accumulates in the fuel tank or container during the fueling process, the tank/container may discharge a spark to the grounded gasoline dispenser nozzle.
- **Persons.** A person dispensing the gasoline can carry a static electric charge on their body, typically resulting from contact with their car seat or electronics. The static electricity can discharge as a spark between that person's hand and either the grounded dispenser nozzle or the fuel tank opening.

M296026 Exploded View – Rev H

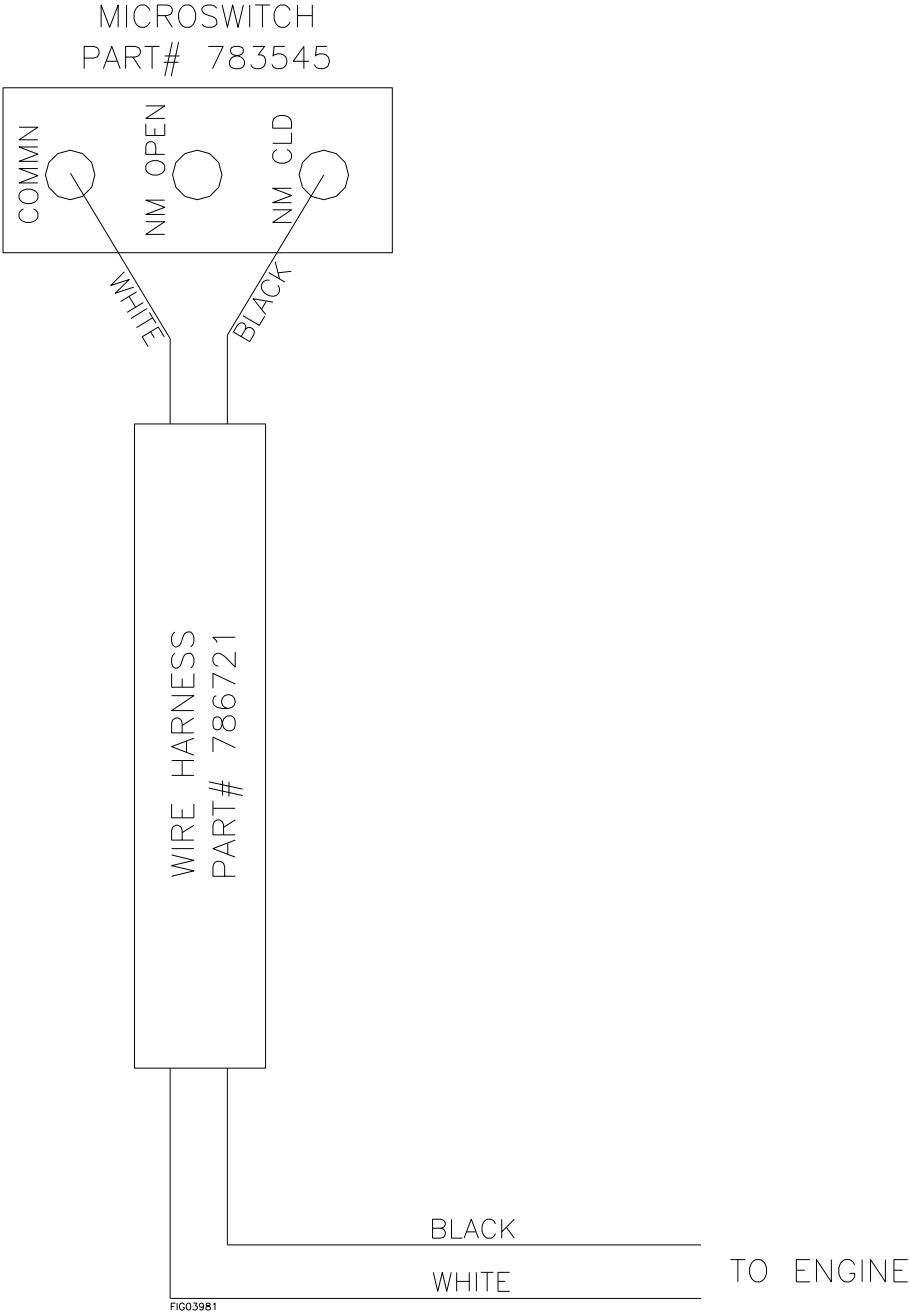


M296026 Exploded View – Rev H

Ref #	Part #	Description	Qty
1	783545 783769	Microswitch Microswitch bracket	1
2	30747	Handle grip	2
3	786396	Operator presence lever	1
4	82047	M8 rib washer	1
5	82085	1/4" flat washer	1
6	82020	5/16"-18 nyloc nut	19
7	786394	Throttle lever	1
8	786550	NorthStar decal	1
9	799827	Handle	1
10	786715	Brake bracket	1
11	82088	5/16"-18 x 3/4" carriage bolt	2
12	82454	3/8" x 3/4" washer	1
13	786719	Brake lever	1
14	786779	1/2" rubber grip	1
15	786721	Wire harness	1
16	786923	Hinge bracket (left)	1
17	82014	5/16"-18 x 1/2" HHSF bolt	4
18	82435	3/8" x 1-1/4" PTFE washer	6
19	785907	Screw, exhaust deflector	2
20	786549	Exhaust deflector	1
21	60590	GX160 Honda engine	1
22	82017	5/16"-18 x 1-1/2" HHSF	4
23	82019	5/16"-18 Flange Nut	10
24	786081	Rear rubber flap	1
25	790114	Belt guard, flat	1
26	82086	5/16"-24 x 3/4" HHCS	3
27	82412	5/16"-24 x 1-1/4" bolt	1
28	786136	Belt guard	1
29	82095	5/16"-18 x 2-1/2" bolt	2
30	82021	5/16" flat washer	12
31	82099	5/16"x1-1/2" Fender Washer	3
32	82143	1/4" x 1/4" x 1-3/4" key	1
33	785913	Sheave, AK30 x 1"	1
34	786079	Clutch	1
35	785914	Belt, AX37	1
36	786480	Belt guard back	1
37	82009	1/4"-20 x 3/4" bolt	2
38	82222	1/4"-20 nyloc nut	2
39	82376	5/8"-18 x 1-3/4" pocket bolt	4
40	784066	Countersunk pocket	2
41	784070	Straight teeth	4

Ref #	Part #	Description	Qty
42	784067	Threaded pocket	2
43	786371	Cutting wheel	1
44	82115	7/16"-14 nyloc nut	4
45	82038	1/2" flat washer	4
46	785400	1" pillow block	4
47	82391	7/16"-14 x 1-1/2" flange bolt	4
48	786350	Frame	1
49	786080	Front rubber flap	1
50	82016	5/16"-18 x 1" bolt	8
51	82408	5/16"-18 x 1-3/4" coupling nut	3
52	803288	Tire	2
53	82015	5/16"-18 x 3/4" HHSF bolt	8
54	305200	Wheel retainer	2
55	786174	Hub	1
56	82139	1/8" x 1" cotter pin	1
57	82205	9/16" USS flat washer	1
58	786639	Brake pin	1
59	786780	3/16" x 1/2" clevis pin	1
60	786781	Hitch pin clip	1
61	783539	5/8" x 2" spring	1
62	82100	15/16" split lock washer	9
63	786920	Hinge bracket (right)	1
64	786380	Pivot spacer	3
65	82434	3/8" x 1/2" shoulder bolt	2
66	786488	Rubber stopper	2
67	82226	5/16"-18 x 1-1/4" HHCS bolt	2
68	38578	T-handle knob	2
69	82440	5/16"-18 eye bolt	2
70	783815	2-1/2" x 1-1/2" vinyl cap	1
71	786726	Brake cable	1
72	801054	Throttle cable	1
73	786761	Brake pin mount bracket	1
74	82302	5/16"-18 x 2-3/4" flange bolt	2
75	82462	5/16"-18 x 1/2" SHCS	2
76	799742	Pan Screw	1
77	799740	Wire Holder	1
78	799741	Circlip	1
Personal Protection Equipment (not shown):			
n/a	798999	Reusable corded earplugs	1
	799000	Face Shield	1
	799001	Safety eyewear	1
	799003	Safety gloves	1

Wiring Diagram



Limited Warranty Policy

Dear Valued Customer:

The NorthStar Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a NorthStar product, you show a desire for quality and durability.

Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product.

Limited Warranty

NorthStar shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of 2 years from the date of purchase by user. This warranty applies to the original purchaser of the equipment and is non-transferable. Verification of purchase is the responsibility of the buyer. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of NorthStar.

NOTE: Some services performed by parties other than NorthStar may void warranty.

This warranty covers parts only. It will not provide for replacement of complete products due to defective parts. Components not manufactured by NorthStar such as engines are guaranteed by their manufacturer and can be serviced at factory-authorized locations near you. Any costs incurred due to replacement or repair of items outside of a NorthStar approved facility is the responsibility of the buyer and not covered under warranty. NorthStar can supply you with the service center location in your area.

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by NorthStar in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use.

Warranty does not cover items subject to normal wear such as tires, receptacles or any part subject to direct physical contact by the public. This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part.

This warranty is in lieu of any other warranty expressed or implied and NorthStar assumes no other responsibility or liability outside that expressed within this warranty.

Please fill in the following information and have it on hand when you call in a warranty claim.

Customer Number: _____

Date of Purchase: _____

NorthStar Serial Number: _____

Item Number: _____

⚠ WARNING: This product can expose you to chemicals including gasoline engine exhaust, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.



Manufactured by
Northern Tool + Equipment Co., Inc.
2800 Southcross Drive West
P.O. Box 1499 Burnsville, MN 55337-0499
Made in the USA