In The Interest Of Safety

BEFORE STARTING ENGINE, READ AND UNDERSTAND THE "OPERATING AND MAINTENANCE INSTRUCTIONS."

THIS SYMBOL MEANS WARNING OR CAUTION.
DEATH, PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY OCCUR UNLESS INSTRUCTIONS ARE FOLLOWED CAREFULLY.

WARNING: DO NOT

1. DO NOT run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odorless and deadly poison.
2. DO NOT place hands or feet near moving or rotating parts.
3. DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
4. DO NOT refuel indoors where area is not well ventilated. Outdoor refueling is preferred.
5. DO NOT fill fuel tank while engine is running. Allow engine to cool for 2 minutes before refueling. Store fuel in approved safety containers.
6. DO NOT remove fuel tank cap while engine is running.
7. DO NOT operate engine when smell of gasoline is present or other explosive conditions exist.
8. DO NOT operate engine if gasoline is spilled. Move machine away from the spill and avoid creating any ignition until the gasoline has evaporated.
9. DO NOT transport engine with fuel in tank.
10. DO NOT smoke when filling fuel tank.
11. DO NOT choke carburetor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
12. DO NOT run engine at excessive speeds. This may result in injury.
13. DO NOT tamper with governor springs, governor links or other parts which may increase the governed engine speed.
14. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
15. DO NOT check for spark with spark plug or spark plug wire removed. Use an approved tester.
16. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.
17. DO NOT strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.
18. DO NOT operate engine without a muffler. Inspect periodically and replace, if necessary. If engine is equipped with muffler deflector, inspect periodically and replace, if necessary, with correct deflector.
19. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible material in the muffler area.
20. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.
21. DO NOT touch hot muffler, cylinder, or fins because contact may cause burns.
22. DO NOT run engine with air cleaner or air cleaner cover (or cover directly over carburetor air intake, if Sno/Gard engine) removed.
23. Do not operate during excessive **vibration!**
24. Do not leave machine unattended while in operation.
25. Do not park machine on a steep grade or slope.

WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING. Disconnect the negative wire from the battery terminal if equipped with a 12 volt starting system.
2. DO keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.
3. DO pull starter cord slowly until resistance is felt. Then pull cord rapidly to avoid kickback and prevent hand or arm injury.
4. DO examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
5. DO use fresh gasoline. Stale fuel can gum carburetor and cause leakage.
6. DO check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.
7. Follow **engine** manufacturer operating and maintenance instructions.
8. **Inspect** machine and work area before starting unit.

GRAZOR

GZ400H

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IMPORTANT GENERAL SAFETY INSTRUCTIONS

Before operating this machine, be sure the operator has familiarized himself with Safety and Operating instructions contained in this manual.

DANGER: When operating your GRAZOR follow basic precautions, including the following:

1. **DRESS PROPERLY, WEAR SAFETY GLASSES OR GOGGLES.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Use of sturdy gloves and safety footwear is recommended.

2. **READ AND FOLLOW ALL ENCLOSED INSTRUCTIONS.** Read the instruction manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls.

3. **DANGER - ROTATING BRUSH**
   Keep both hands on the handles when brush is rotating. Keep feet away from brush area. Do not attempt to hold material to be removed when engine is running or when brush is moving. Make sure spark plug is disconnected when clearing jammed material from the brush.
   DANGER-Brush coasts after stopping engine.

4. **CAUTION**: Operate this product from a position where guards block the line of sight to the brush.

5. **KEEP OPERATING AREA CLEAR.** Keep the area clear of all persons, particularly small children and pets.

6. **STAY ALERT.** Watch what you are doing and use common sense. Do not operate the GRAZOR when fatigued or under the influence of alcohol or drugs.

7. **USE GRAZOR PROPERLY.** Use only for crack cleaning, and removal of the type of grass and other growth in cracks, for which this machine was designed. Do not abuse the GRAZOR. Do not use this product in the rain or other similar wet conditions. Never allow children to operate this product.

8. **DON'T OVER-REACH OR STAND ON UNSTABLE SUPPORT.** Keep good footing and balance at all times.

9. **DO NOT ATTEMPT TO REPAIR THE PRODUCT.** Have repairs made only by a qualified dealer or repairman. See that only identical replacement parts are used.

WARNING
Do not use replacement brushes of an inferior quality.

OPERATION

1. Do not operate product when barefoot or wearing open sandals. Always wear safety footwear, and pants or slacks that cover your legs.

2. DO NOT use product on graveled surfaces.

3. Never operate this product without good visibility or light.

4. Start the engine carefully. Make certain the brush is raised in the store position, and that the engine stop switch is set to "on" before attempting to start. Keep hands, feet, clothing and the like well away from cutting member and other moving parts.

5. Never attempt to make any adjustments while engine is running.

6. Never direct discharge of material toward bystanders nor allow anyone near the area of operation. Use care in directing discharge to avoid glass enclosures, automobiles and the like.

7. Stay alert for uneven pavement, holes in terrain or other unstable conditions when using this product. Always push the machine slowly over rough surfaces.

8. Objects struck by the brush can cause injuries. The surface should always be carefully examined and cleared of all foreign objects prior to operation. See brush safety instructions, page 8.

9. Move brush lever to store position when the product is transported or is not in use. Take all possible precautions when leaving the machine unattended. Disengage attachments and stop the engine.

10. When cleaning, repairing, or inspecting, make certain the brush and all moving parts have stopped, and the engine is not running. Disconnect the spark plug wire and keep the wire away from the plug so that unintentional starting does not occur. Keep all guards free from debris build-up.

11. Never operate this product without guards, plates or other protective devices in place.

12. Use only accessories and attachments supplied, or specifically recommended by the manufacturer.

13. Do not operate this product with a damaged or excessively worn brush.

14. **CAUTION**: Operate this product from a position where guards block the line of sight to the brush.

SAVE THESE INSTRUCTIONS

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GRAZOR

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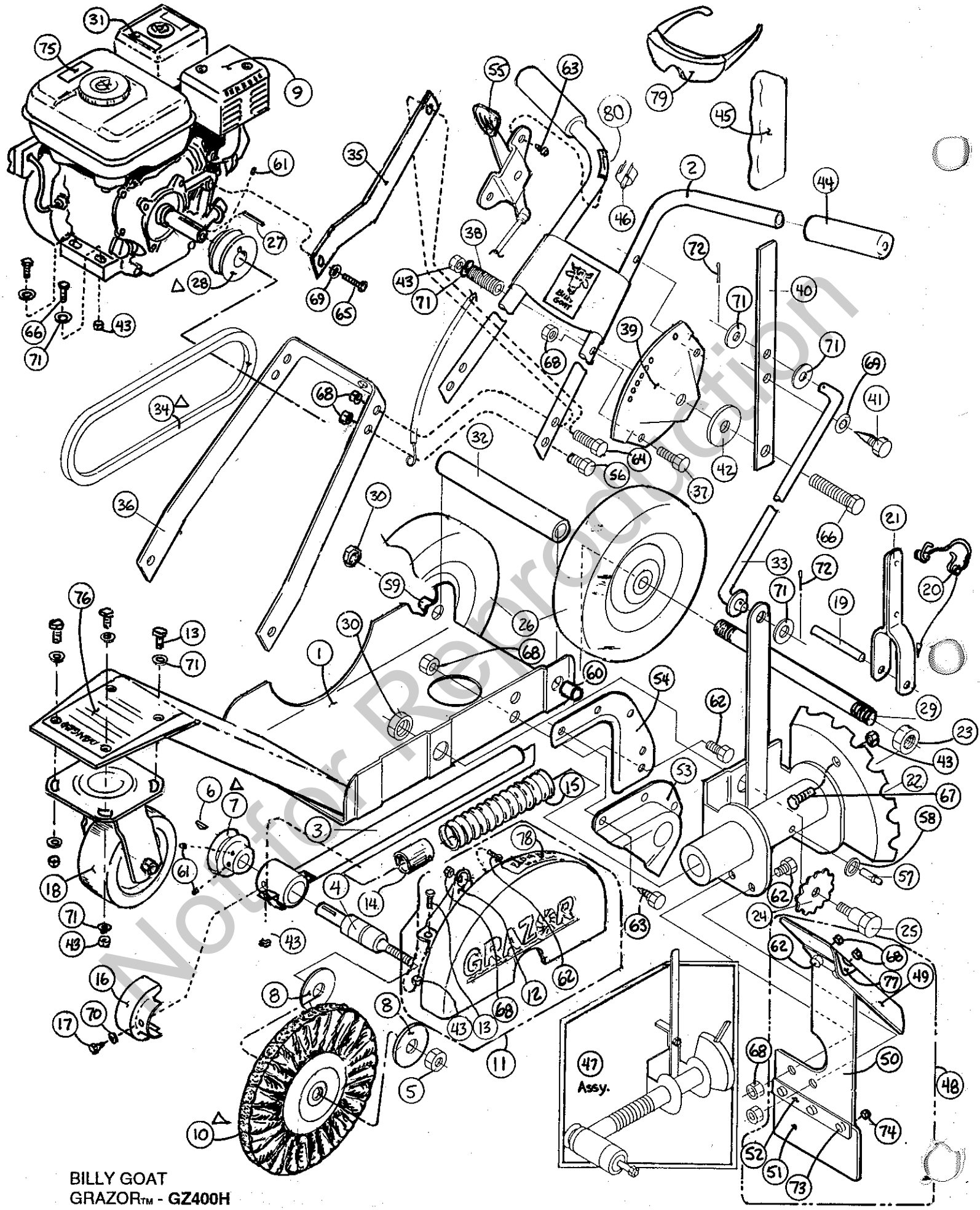

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BILLY GOAT
GRAZOR™ - **GZ400H**

BILLY GOAT INDUSTRIES, INC.

GRAZOR™ PARTS LIST
GZ400H

ITEM	DESCRIPTION	PART NO.	QTY.	ITEM	DESCRIPTION	PART NO.	QTY.
1	BASE ENGINE WA	610116	1	42	WASHER FIBER	610348	1
2	HANDLE WA	610302	1	43	NUT LOCK 5/16-18	8160002	14
3	ARM MANDREL WA SHORT	610119	1	44	GRIP HANDLE 3/4 BLACK	610102	2
4	BEARING & SHAFT	610304	1	45	GRIP LEVER	850190	1
5	NUT JAM 1/2 NF W/LOCK	610305	1	46	CLIP	610351	1
6	KEY WOODRUFF 3/16 x 3/4	610306	1	47	MANDREL & SIDE BRACKET ASSY	610117	1
△ 7	PULLEY 2"	△ 610307	1	48	DIRT DEFLECTOR ASSY	610121	1
8	WASHER 1/2 x 2"	610308-P	2	49	DEFLECTOR DIRT-TOP	610355-T	1
9	ENGINE 4.0 H.P. HONDA - GX120	610105	1	50	DEFLECTOR DIRT BOTTOM	610355-B	1
△ 10	BRUSH 8" WIRE WHEEL (Heavy Duty 600172)	△ 600108	1	51	DEFLECTOR DIRT RUBBER FLAP	610355-R	1
11	GUARD & BRKT ASSY	610127	1	52	PLATE DIRT DEFLECTOR	610355-P	1
12	BRACKET GUARD SUPPORT	610311B	1	53	GUARD ENGINE PULLEY	610357	1
13	SCREW CAP 5/16-18 x 1"	8041028	6	54	BRACKET MOUNT	610358	1
14	SPACER	610128	1	55	THROTTLE & CABLE HONDA	610360	1
15	SPRING TENSION	610315	1	56	SCREW CAP 1/4-20 x 3/4	8041004	3
16	BELT CUP	610316	1	57	FITTING-GREASE	610363	1
17	SCREW HEX 1/4 NC x 1/2 SELF TAP	610317	1	58	WASHER FIBER 1/4 I.D. x 7/16 O.D.	610363-1	1
18	CASTER 5" DIA. x 2"	610101	1	59	SPACER	900231	1
19	PIN LEVER 1/4 x 1 3/4	610319	1	60	SPACER	900926	1
20	SPRING TORSION	610320	1	61	SCREW-SET 5/16-24 x 5/16	8084106	3
21	LEVER ANGLE ADJ. ASSY	610321	1	62	SCREW CAP 1/4-20 x 1/2	8041002	7
22	BRACKET SIDE WA	610322	1	63	SCREW W.FACE #10 NC x 1/2 SELF TAP	8123086	5
23	NUT LOCK 1/2 NC THIN HT.	8161044	1	64	SCREW CAP 1/4-20 x 1"	8041006	1
24	WASHER SPRING	610324	1	65	SCREW CAP 5/16-24 x 3/4 GR. 5	8042026	1
25	BOLT SHOULDER 5/8"	610325	1	66	SCREW CAP 5/16-18 x 1 1/2	8041030	5
26	WHEEL 8" PNEU. HD ASSY	610103	2	67	SCREW MACH. 5/16-18 x 1 1/4	8041029	1
27	KEY SQ. 3/16 x 1 1/4	9201080	1	68	NUT LOCK 1/4-20	8160001	13
△ 28	PULLEY 2 1/2 x 3/4	△ 610334-1	1	69	WASHER LOCK INT. 5/16	610347-1	2
29	AXLE GRAZOR	610131	1	70	WASHER LOCK INT. 1/4	8180009	1
30	NUT LOCK 1/2-13 REG.	8160005	2	71	WASHER FLAT CUT 5/16	8171003	17
31	LABEL AIR CLEANER	610107	1	72	PIN COTTER 1/8 x 1"	8197031	2
32	TUBE SPACER	610337	1	73	SCREW HEX # 10 NC x 1/2	8059133	3
33	ROD	610338	1	74	NUT LOCK #10 NC	8164005	3
△ 34	BELT "V" AX26	△ 610339-1	1	75	LABEL HOT ENGINE	400268	1
35	BRACE HANDLE	610340-2	1	76	LABEL DANGER CK	600117	1
36	HANDLE BRACKET	610342	1	77	LABEL DANGER	400424	1
37	SCREW CAP 1/4-20 x 1 1/4	8041007	2	78	LABEL DANGER - GUARDS	900327	1
38	SPRING COMPRESSION	610344	1	79	GLASSES SAFETY	610129	1
39	PLATE ADJ. 7 HOLE	610345-1	1	80	LABEL THROTTLE CONTROL	610125	1
40	LEVER	610346	1	81			
41	PIN-SCREW	610347	1	82			

△ These parts are high wear items and are excluded from warranty.

Brush Arbor Size = .5"

Old C-Clamp To Hold Guard on 312.

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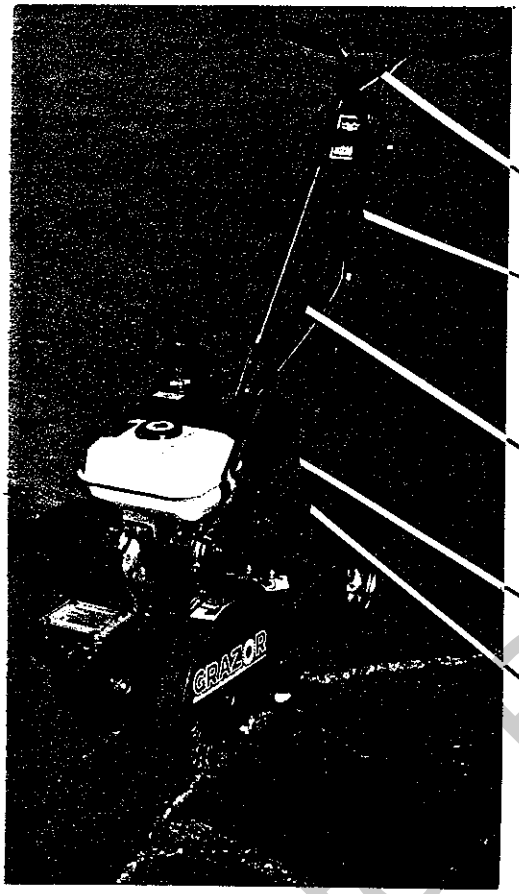
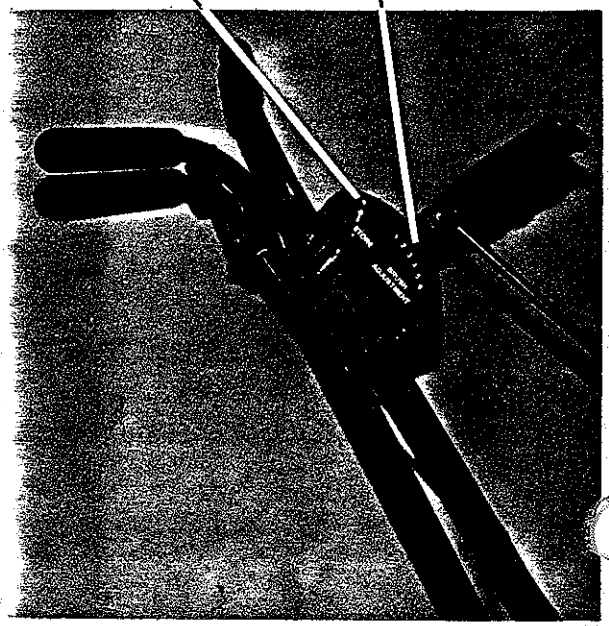
ASSEMBLY

Your GRAZOR is shipped with some bolts in the proper place for assembly; they need only to be removed and assembled according to the following guide.

1. Assemble Upper Handle (Item 2) to Handle Bracket (Item 36), and Brace Handle (Item 35), to upper bolt postion using Hardware (Items 56, 64, & 68).
2. Assemble Throttle (Item 55) to Upper Handle using Hardware (Item 63).
3. Connect Rod (Item 33) to Lever (Item 40), and Bracket Side WA (Item 22), using Hardware (Items 71, & 72).



Home Reproduction



LIMITED WARRANTY

Billy Goat Industries warrants all Products manufactured by it against defects in workmanship or material for a period of 90 days from the date of shipment to Customer. The responsibility of Billy Goat Industries under this Warranty is limited to replacement or repair of defective parts at Billy Goat Industries, Lee's Summit, Missouri factory, or at a point designated by, it of such part as shall appear to us upon inspection at such point, to have been defective in material or workmanship, with expense for transportation and labor borne by Customer.

In no event shall Billy Goat Industries be liable for consequential damages arising out of the failure of any Product to operate properly.

Integral units such as gasoline engines, electric motors, batteries, tires, transmissions, etc., are excluded from this Warranty and are subject to the prime manufacturer's warranty.

Brush, Belt and Pulleys are high wear items and are excluded from this warranty.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

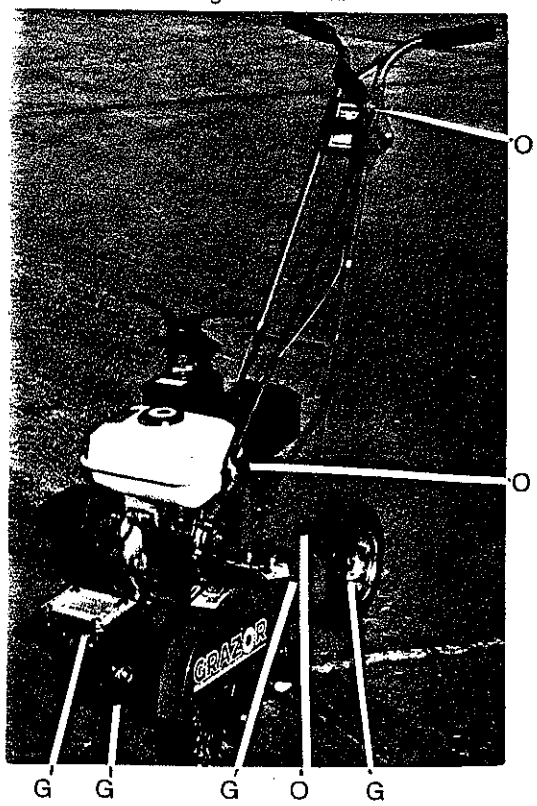
BILLY GOAT INDUSTRIES, INC.

P.O. Box 308
1803 S. Jefferson
Lee's Summit, Mo. 64063
Phone: 816-524-9666
Fax: 816-524-6983

USER MAINTENANCE INSTRUCTIONS

GRAZOR LUBRICATION:

Oil all points marked O. (shown below)
Grease points marked G. (shown below)
ENGINE: See engine manual

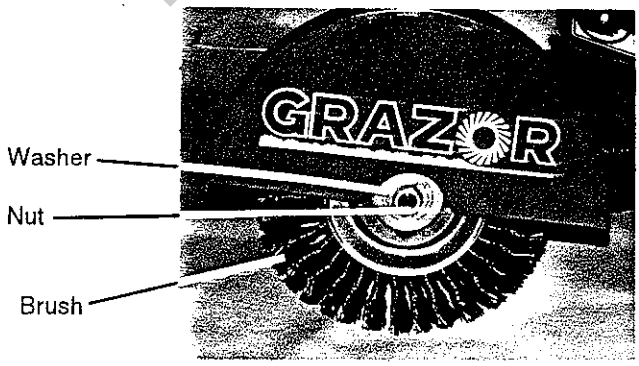


Keep all nuts, bolts and screws tight. Never store this units, with fuel in the tank, inside a building where fumes may reach an open flame of sparks, or in a confined space such as a car trunk.

Refer to the engine manual for important details if this product is to be stored for an extended period of time.

CHANGING BRUSH

1. Disconnect the spark plug wire.
2. Use a standard 3/4" wrench on brush nut. Place a heavy cloth over the brush and hold the brush securely, turning the nut in a counter-clockwise direction. After removing the brush and washers, inspect the washers for excessive wear and replace if needed.
3. Be sure washers and brush are replaced in the exact sequence in which they were removed. If in doubt refer to parts drawing in this manual.

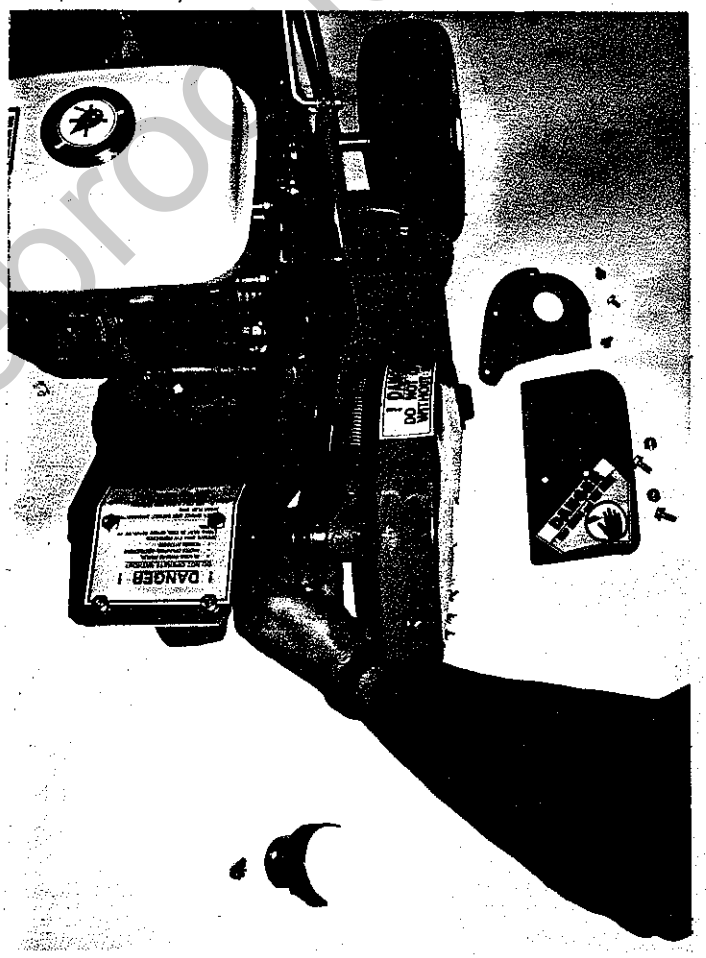


CHANGING BELT

1. Disconnect the spark plug wire.
2. Move brush into store POSITION.
3. Remove belt guard item 16, deflector item 49 and guard pulley item 53.
4. Remove belt item 34 from front pulley.
5. Move brush to POSITION 3.
6. Remove belt from engine pulley.
7. Reinstall new belt in reverse order. (see below)

CHANGING PULLEYS

1. Disconnect the spark plug wire.
2. Remove belt as shown above.
3. Loosen set-screws on pulley to be replaced.
4. Remove pulley and replace.
5. Reinstall belt and guards. (see below)



Belt and Pulley Replacement

NOTE: Fuel stabilizer (such as Sta-Bil) is an acceptable alternative in minimizing the formation of fuel gum deposits during storage. Add stabilizer to gasoline in fuel tank or storage container. Always follow mix ratio found on stabilizer container. Run engine at least 10 min. after adding stabilizer to allow it to reach the carburetor.

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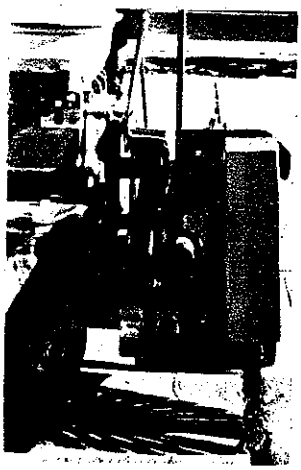
Operating Hints:

A side-to-side sweeping motion is the quickest way to remove surface vegetation from crevices, even if deeper crevice cleaning is desired.

After removing surface vegetation, the crevice will be more visible for a deeper cleaning.

Brush angle can be set for vertical or for angled operation. The vertical position works best for most crevices found on flat surfaces. The angled position allows GRAZOR to remove vegetation next to a wall or curb as shown below.

To change brush angle, reposition lever just in front of rear left wheel to either vertical or angled position as shown below.



Power Brush Safety Requirements

Warning - In normal power brushing operations, the material being removed such as burrs, scale, dirt, weld slat, or other residue, will fly off the brush with considerable force along with brush filaments which break off due to fatigue. The **Potential of Serious Injury Exists** for both the brush operator and others in the work area (possible 50 or more feet from the brush). To protect against this hazard, wear **Safety Goggles** or **Full Face Shields Worn Over Safety Glasses With Side Shields**, along with **Protective Clothing.** You must follow all operator and safety instructions, as well as all common safety practices which reduce the likelihood of physical injury, or reduce its severity.

Summary - Power Brush Safety Requirements

Safety Goggles - Safety goggles or full face shields worn over safety glasses with side shields **Must Be Worn by all Operators and Others In The Area of power brush operations.**

Guards - Keep all machine guards in place.

Speeds - Observe all speed restrictions indicated on brushes, containers, labels or printed in pertinent literature. "MSFS" means Maximum Safe Free Speed (RPM) - spinning free with no work applied. For reasons of safety, "MSFS" should not be exceeded under any circumstances.

Protective Equipment - Appropriate protective clothing and equipment must be used where there is a possibility of injury that can be prevented by such clothing or equipment.

Warning! Failure To Observe Safety Precautions May Result In Injury.

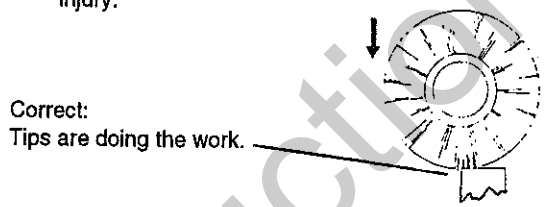
Brush Usage Recommendations

Pressure - Avoid excessive pressure when using a power brush. Excessive pressure causes over-bending of the filaments and heat build-up resulting in filament breakage, rapid dulling and reduced brush life. Instead of greater pressure on a brush, it is suggested that you try: 1) a brush with a more aggressive cutting action (increased wire size, decreased filament length, change to a different brush type, i.e., knot type instead of crimped wire type), or 2) higher speed (increased R.P.M., increased brush diameter.)

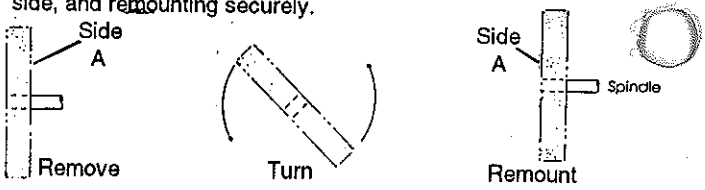
Important Note: Never exceed the recommended **Maximum Safe Free Speed** R.P.M. (MSFS) rating of the brush.

Safety First

Failure to observe any of the requirements shown in the safety section will create safety hazards and can cause injury.



Self-Sharpening - When using wire wheel brushes, periodically reverse the direction of rotation to take advantage of the self-sharpening action that will result. This may be accomplished by removing the brush from the spindle and turning it side for side, and remounting securely.



Brushing Problems - Do Not Allow Unsafe Conditions To Continue. Occasionally, due to worn bearings, a bent spindle, an unusual application, operator abuse, or inappropriate use, a brush may fail. A brush which is not received in acceptable condition for trouble-free operation may also fail. Do not use or continue to use a failed brush or one which is functioning improperly (i.e., throwing filaments, out-of-balance, etc.) as this increases the possibility for further brush failure and hazard of injury. The cause of the failure should be evaluated and corrected.

This information is based on the collective experience of the ABMA Industrial Division members and provided solely as a public service for the guidance of the users of the members' products. These recommendations are not necessarily complete with respect to any particular application and common sense safety considerations should be adhered to generally. Any applicable federal, state, local law or regulation, must be strictly adhered to, and is controlling over any recommendation contained herein.

Safety Instructions

Twisted-In-Wire Brushes

The Twisted-In-Wire brushes, used under power, shall be securely held in a collet, chuck or similar holding device.

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