

Operator's Safety and Service Manual

Scarifier



TFP-9



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It is the OWNER'S RESPONSABILITY to communicate information on the
SAFE USE and OPERATION of this machine to the operators.

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1. SERIAL NUMBER LOCATION

The model/serial number decal is located on the shroud assembly (black).

(Write model number)



(Write serial number)


The unit's year of manufacture can be determined by the serial number. Contact your nearest sales branch or  for more information.

This Unit warranty is stated in this Operational and Safety manual on page 16. Failure to return warranty registration card renders the warranty null and void.

An engine owner's manual is also attached to every unit. Engine parts may order from any authorized dealer. Refer to the engine owner's manual to learn about specifications and part identification.


2. PARTS ORDERING PROCEDURE:


 Parts are available worldwide and must be ordered through your local distributor. If you can't locate the  distributor in your area refer to page 17 of this manual to locate the nearest branch and contact numbers for assistance.

 Scarifiers are intended for use in several applications. They are powered by four stroke gas engines or electric motors and are available in different sizes and manufacturers.

This Operation manual contains only standard parts. Variations of these parts as well as other special parts are not included. Contact your local  distributor for assistance in identifying parts not included in this manual.

ALWAYS HAVE READY:

1. Model and serial number of machine when ordering  parts.
2. Model and serial number of engine when ordering engine parts.
3. Item part number(S), description, and quantity.
4. Company name, address, zip code, and purchase order number.
5. Preferred method of shipping.


REMEMBER – You own the best. If repairs are needed, use only purchased parts from authorized  distributors.

3. ASSEMBLING INSTRUCTIONS

UNPACKING

1. Remove the unit and all components from its shipping crate. You will see:
 - Preassembled scarifier with carbide cutters, or tungsten cutters if they were purchased separately.
 - Scarifier handle control.

FINAL ASSEMBLING

 Surface Scarifiers are shipped completely assembled with the exception of the handle control.

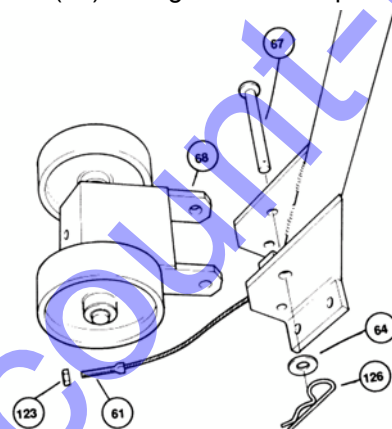
Note: All installation hardware must be inserted into its respective location on the equipment, see parts explosion for more details.

1. Using appropriated equipment, bring the unit to the ground from its shipping pallet.

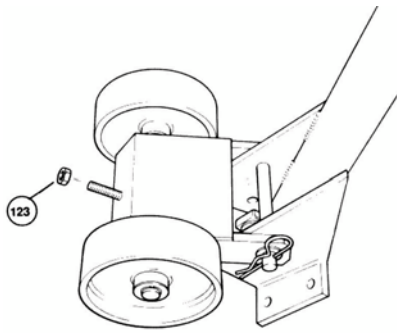


Warning: failure to use proper lifting equipment could cause the equipment to fall and cause serious injury.

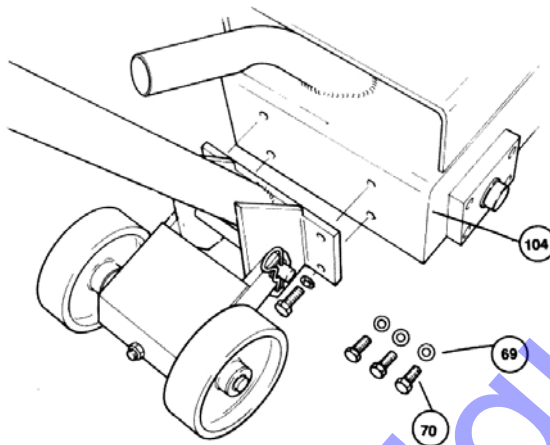
2. Remove the pin (67) from the handle assembly. Align the lift plate (68) and re-insert the top pin (67). Place flat washer (64) on pin. Insert spring clip (126) through hole in pin. Feed threaded bolt end of cable (61) through hole on lift plates.



3. Tighten cable by attaching nut (123).



4. Remove the four bolts (70) and lock washers (69) from machine housing (104). Match up the holes on the handle assembly to the machine housing and insert the bolts (70) and the washers (69). Tighten bolts corner-to-corner. Before final tightening, place the machine on a flat surface to ensure all wheels contact the surface.



EDGER ASSEMBLING/INSTALLATION

Make sure that the power source is disconnected; unplug the electric unit; disconnect spark plug and turn off fuel supply on gas unit; disconnect air supply on air unit.

1. Tilt machine back onto handle (if your unit is equipped with a Honda GX engine, unit must be tilted forward or cylinders will be flooded with oil).
2. Remove cutter cage and retainer shaft.
3. Facing underside of machine, slide dummy shaft (110) through outboard bearing on left side (if engine is a Honda GX this will be on the right side of the housing).
4. Slide retainer shaft (108) through edger cage. The roll pin in the shaft head should fit into the slot on the end plate of the cage.
5. Slide retainer shaft through the outboard bearing and the dummy shaft.
6. Using a 15/16" socket or wrenches tighten the retainer shaft by turning counter clockwise.
7. Install edger housing (106) using the three bolts supplied (107).
8. NOTE: Edger operation is not to be performed with main TFP cage in place.



4. SAFETY PRECAUTIONS



READ AND STUDY THE FOLLOWING SAFETY INFORMATION BEFORE ATTEMPTING TO OPERATE THIS EQUIPMENT. IN ADDITION, ENSURE THAT EVERY INDIVIDUAL WHO OPERATES OR WORKS WITH THIS EQUIPMENT IS FAMILIAR WITH THESE SAFETY PRECAUTIONS.

WARNING - LETHAL EXHAUST GAS!

An internal combustion engine discharges carbon monoxide, which is a poisonous and odorless invisible gas. Death or serious illness may result if inhaled. Operate only in an area with good ventilation, **NEVER IN A CONFINED AREA!**

WARNING - DANGEROUS FUELS!

Use extreme caution when storing, handling and using fuels - they are highly volatile and explosive in the vapor state. Do not add fuel while engine is running. Stop and cool the engine before adding fuel.

DO NOT SMOKE WHEN REFUELING!

SAFETY GUARDS

It is the owner's responsibility to ensure **ALL GUARDS AND SHIELDS** are in place and in working order.

IGNITION SYSTEMS

Breakerless magneto and batteries ignition systems **CAN CAUSE SEVERE ELECTRICAL SHOCKS**, avoid contact with these components or their wiring.

SAFE DRESS

DO NOT WEAR loose clothing, rings, wristwatches, etc., near machinery.

NOISE PROTECTION

Wear O.S.H.A. specified hearing protection devices.

FOOT PROTECTION

Wear O.S.H.A. specified steel tip safety shoes.

HEAD PROTECTION

Wear O.S.H.A. specified safety helmets.

EYE PROTECTION


Wear O.S.H.A. specified eyes shields, safety glasses, and sweat bands.

DUST PROTECTION

Wear O.S.H.A. specified dust mask or respirator.



OPERATOR

Keep children and bystanders off and away from the equipment. Only trained Operators who fully understand its safety operation must use this equipment.


For details on safety rules and regulations in the United States, contact your local Occupational Safety and Health Administration (O.S.H.A.) office. Equipment operated in other countries must be operated and serviced in accordance and compliance with any and all safety requirements of such country. The publication of these safety precautions is done for your information does not by the publication of these precautions, imply or in any way represent that these are the sum of all dangers present near equipment. If you are operating a  unit it is your responsibility to insure that such operation is in full accordance with all applicable safety requirements and codes. All requirements of the United

States Federal Occupational Safety and Health Administration Act must be met when operated in areas that are under the jurisdiction of that United States Department.

5. SAFETY NOTICE & DECALS

**IMPORTANT NOTICE**

The "**SAFETY ALERT SYMBOL**" is used to call attention to items or operations that may be dangerous to those operating or working with this equipment. These symbols can be found throughout the manual and on the unit itself. Please read these warnings and cautions carefully.

Carefully read and follow all safety decals. Keep them in good conditions. If they become aged, replace as required. If repainting, **REPLACE ALL** decals. Decals are available from your authorized  Distributors. Decals are not shown to scale.





201155




201157



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201003 (x2)



201005



201152



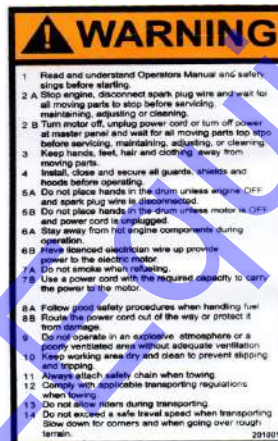
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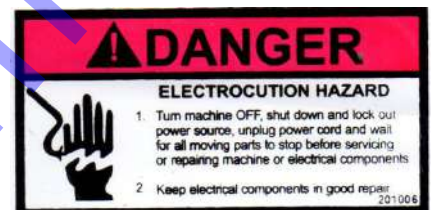
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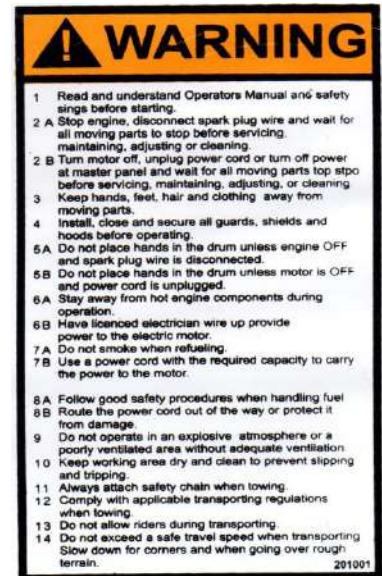
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201001 SMALL



201006



201001 BIG




201154



201004

SAFETY PRECAUTIONS	
	<p>! DANGER</p> <p>EXPLOSION HAZARD Never operate the machine in an explosive atmosphere, near combustible materials or where ventilation does not clear exhaust fumes.</p>
	<p>! WARNING</p> <p>BURN HAZARD Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.</p>
	<p>! CAUTION</p> <p>MOVING PARTS Before starting the machine ensure that all guards and safety devices are in place and functioning properly.</p>
	<p>! CAUTION</p> <p>MACHINE DAMAGE Advance cutter depth in small increments to avoid premature wear or damage.</p>
	<p>! ATTENTION</p> <p>READ OWNERS MANUAL Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.</p>

6. BEFORE OPERATING

- ✚ **REMEMBER!** It is the owner's responsibility to communicate information on the safe use and proper operation of this unit to the operators.
- ✚ Before operating, review SAFETY PRECAUTIONS listed on page 6 of this manual.
- ✚ Familiarize yourself with the operation of the unit and confirm that all controls function properly BEFORE starting engine.
- ✚ Locate the killing switch and assure you know how to **STOP** the unit.
- ✚ Make sure hands, feet, and clothing are at a safe distance from any moveable parts prior to starting.
- ✚ Shrouds and guards are provided to protect the operator or structures in close proximity to rotating hot engine parts. It is the **RESPONSABILITY OF THE OPERATOR** to see that they are properly in place. **NEVER** operate this equipment without a guard.
- ✚ OIL LEVEL - Check the oil level in the engine. For more information see "Lubrication" under the engine "Owner's Manual" the "Maintenance" section of this manual. **All Equipment come without oil, running an engine without lubrication may damage the engine.**
- ✚ AIR CLEANER - Check to ensure elements are in good condition and properly installed.
- ✚ Review every decal with the OPERATOR.
- ✚ FUEL SUPPLY - Engines on  equipment require an automotive grade of clean, fresh, unleaded or regular gasoline. **All equipment's come without gasoline and oil.**
- ✚ FUEL FILTER - Check to ensure element is in good condition... Replace if it is clogged or damaged.
- ✚ LUBRICATION POINTS – Grease wheels (4), Drive Shaft and bushing daily. **ALGO MAS?**
- ✚ SPARK PLUG (GAS UNIT) – Check and clean spark plugs regularly. A fouled, dirty or carbonated spark plug may cause difficulties starting and poor engine performance. Set spark plug gap to recommended clearance. Refer to engine manual.
- ✚ BELT TENSION – If there is excessive belt play, there will be a decrease in the cutting/grinding performance, which could cause unit damages. The normal belt play should be 3/8" to 1/2" which is measured by depressing the top section of the belt at the belt guard mounting bracket location. When adjusting the belts, make sure that the drive pulley is in aligned with the cage pulley.
- ✚ POSITION – The only operating position for this scarifier is at the rear of the equipment. If the operator must leave this position the engine must be shut down.

- ✚ SPECTATORS – Keep all personnel/spectators away from the Scarifier while running. This Spinning equipment can throw segments and can cause injuries.

7. STARTING ENGINE/AIR

IMPORTANT
Engine warranty is void if the engine is run without oil.

GAS ENGINE

1. With the Scarifier engine level in the ground check oil level and add oil and fuel as required.
2. Pull the stop switch on the unit to its "Out" position.
3. Prior to starting engine, raise the cutter cage assembly using the hand knob lever, so that cutters do not touch the ground surface, "IDLE" POSITION, and secure the lever with the locking handle
4. Move the engine throttle control to the "FAST" position.
5. Choke the engine if necessary. (You may not need to choke a warm engine)



BEFORE STARTING ENGINE MAKE SURE ALL GUARDS ARE IN PLACE.

6. Pull the starter string.
7. After the engine starts, move the choke lever to the open position, move the throttle level to the "IDLE" position and let the engine warm-up for one or two minutes.



SLOWLY LOWER CUTTERS INTO SURFACE, AND USE A DUST CONTROL VACUUM TO PROVIDE A CLEAN WORKING AREA.

8. To stop the engine, make sure to let the engine idle before stopping by using the crank lift handle to raise the scarifier cutters height.
9. Push in the engine stop switch on the scarifier.
10. Close the fuel valve.

ELECTRIC MOTOR

1. With the cage in maximum raised position, plug the motor into a suitable power source.
2. Move the switch on the motor to the "ON" position.
3. It is recommended to let the motor idle before running and stopping by using the crank lift handle to raise the scarifier cutters height.

AIR SUPPLY

With cage in maximum raised position, attach air supply (minimum 90 C.F.M. at 90 P.S.I.) turn quick opening valve on. Run in for two (2) minutes. Turn off valve, and then re-start.

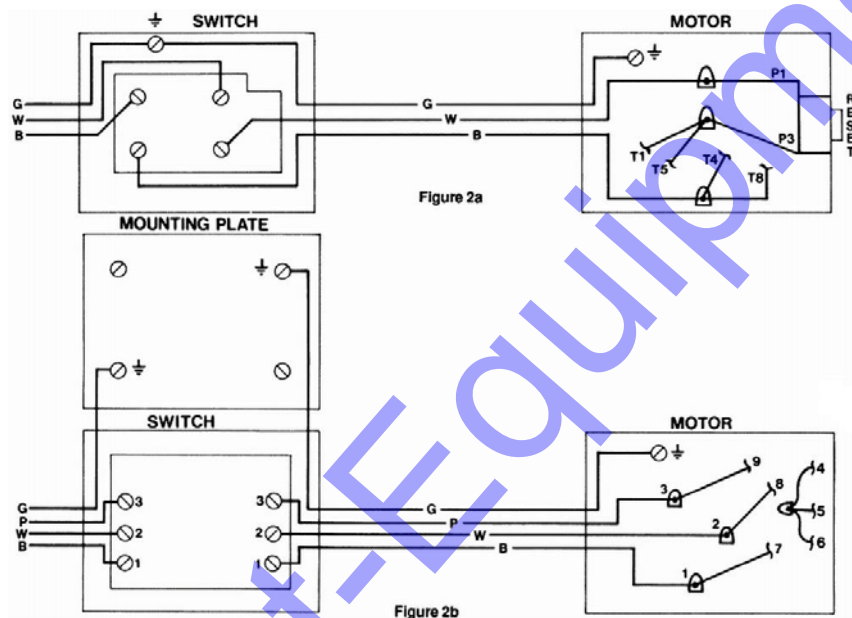
The air regulator is equipped with a pressure gauge. The recommended operating pressure is 90 P.S.I. at 90 C.F.M.; however when the unit is running with no load (cutters not engaged) the gauge will read 40 P.S.I. When the cutters are engaged the indicator needle should rise to 90 P.S.I.

STOP/KILL-SWITCH INSTALLATION

On gas powered models, feed the attached kill switch with a wire coming all the way through the engine terminal. Make sure to clamp the terminal with a pair of pliers

On electric models, attach bracket to the handle with screws and provided lock washers. Wire as following figure:

2a diagram is for 220 volts and 2b diagram is for 440 volt.



STOPPING PROCEDURE:

With machine in upright position, adjust the cutter cage to maximum height by turning the height adjustment knob to its farthest position. (This ensures clearance for the rotating cage.)

GASUNIT – Stop engine by depressing kill switch button located at top of handle.

ELECTRIC UNIT – Turn off switch on handle.

AIR UNIT – Turn off air supply valve.



STOP THE ENGINE OR ELECTRIC MOTOR BEFORE:

- ✚ Adding fuel.
- ✚ Leaving equipment unattended for any amount of time.
- ✚ Making any repairs or adjustments to the unit.
- ✚ Lifting/Transportation.

8. OPERATION INSTRUCTIONS

OPERATING

1. After turning engine/motor "ON", and the scarifier in its raised position, attach the air supply (minimum 90 C.F.M. at 90 P.S.I.) turn quick opening valve on. Run in for two (2) minutes. Turn valve off, and then re-start. The air regulator is equipped with a pressure gauge. The recommended operating pressure is 90 P.S.I. at 90 C.F.M.; however when the unit is running with no load (cutters not engaged) the gauge will read 40 P.S.I. When the cutters are engaged the indicator needle should rise to 90 P.S.I.
1. Lower scarifier cutters until it just touches the pavement by turning the manual lift crank clockwise.



NEVER FORCE THE CUTTERS HEAD INTO THE SURFACE TO A POINT WHERE THE EQUIPMENT STARTS BOUNCING

2. Slowly push scarifier forward to desired area.

This Unit can be used as several applications, make sure you know the operation procedure of this equipment and the cutters types for each application

TYPICAL SCARIFIER APPLICATIONS

- Asphalt leveling and grooving
- Carpet backing removal
- Coating removal
- Concrete grinding
- Concrete & steel surface preparation
- Concrete grooving
- Epoxy removal
- Expansion joint leveling
- Floor cleaning steel & concrete
- Glue/adhesive removal
- Milling joints
- Non-slip removal
- Paint removal
- Steel de-scaling
- Traffic line removal
- Wheelchair ramp leveling.

9. RECOMMENDED CUTTERS TYPE SELECTION

ADHESIVES – CARPET R120 (B-1 Cutters)

Most carpets adhesives removal

Estimated Production Rate: 100-300 sq.ft/hr. Estimated Cutter Life: 1200-1500 sq.ft.

ADHESIVES – TILE R138 (A-3, B-3 Cutters)

Most tile adhesives removal.

Estimated Production Rate: 100-250 sq.ft/hr

Estimated Cutter Life: 1200-1500 sq.ft

CONCRETE GRINDING

R150, R151, or R152 (Carbide Cutters)

Smoothing rough concrete and/or grinding high spots.

Estimated Production Rate: 200-500 sq.ft/hr.

Estimated Cutter Life: 3000-6000 sq.ft

CONCRETE SCARIFYING/GRINDING R134 or R139 (Tungsten Carbide Tipped Cutters)

Concrete preparation prior coating application or concrete overlay (1/8" depth of cut per pass.)

Estimated Production Rate: 200-400 sq.ft/hr.

Estimated Cutter Life: 8000-15,000 sq.ft

PAINTING LINES REMOVAL R132 (B-2)

Painting concrete/asphalt lines removal

Estimated Production Rate: 10-20 linear ft/min

Estimated Cutter Life: 800-2000 linear ft.

THERMOPLASTIC LINES REMOVAL R143 (B-3)

Thermoplastic concrete/asphalt base paints

Estimated Production Rate: 10-20 linear ft./min

Estimated Cutter Life: 800-1200 linear ft.

10. SERVICE INSTRUCTIONS

- ✚ Never service or lubricate the unit engine while running.
- ✚ After servicing the unit, restore and fasten all guards, shields, and covers to their original positions.
- ✚ Never drain oil into the ground, into open streams, or down sewage drains.
- ✚ Keep air filter clean at all times. Wash away dust and debris using anon-oil based cleaning solvent. Let the filter dry before re- installing.

WHEN LIFTING/LOWERING ALWAYS:

1. Set the machine in an upright position and adjust the cutter cage to maximum height by turning the height adjustment knob to its farthest position. (This will ensure clearance for the rotation cage.)
2. Stop the engine or electric motor.
3. REMOVE CUTTERS.

4. Lift the cutting guide to avoid any contact with the head.
5. Secure any other hardware on the machine.
6. Make sure you use appropriated lifting equipment to lift equipment.
7. Do not position yourself where you could possibly be pinched / caught between the equipment and some other obstacle.

TOWING

1. Move Scarifier on the jobsite by hand pushing. Do not tow the unit with another vehicle. The scarifier may be damage if towed.

CUTTING

1. Must know what you are machine, before making any cuts. Be aware of all utilities i.e. gas/pipe lines, electricity, etc. take necessary precautions to prevent injury /death.

STORING

1. Drain fuel tank.
2. Clean drive shaft and coat parts with grease.
3. Lube all bearings
4. Empty water system
5. Clean all moving parts with WD-40 lubricant.
6. Lower unit completely.
7. Cover unit for protection.

ENGINE

See engine owner's manual maintenance schedule.

LUBRICATION

1. Grease wheels, and knob lever daily. Use high quality gun grease.
2. Keep a coating of grease on the drive shaft and threads for easy installation or removal and longer bushing life.

SPARK PLUG

1. Check and clean spark plugs regularly. A fouled, dirty or carbonized spark plug causes hard starting and poor engine performance. Set spark plug gap to recommended clearance. Refer to engine manual.

BELT TENSION

1. If there is excessive belt play, there will be a decrease in the cutting/grinding action, which could cause cage and machine damage. The normal belt play should be 3/8" to 1/2" which is attained by depressing the top section of the belt at the belt guard mounting bracket location. When adjusting the belt make sure that the drive pulley is in alignment with cage pulley. Tighten all engine mount bolts, adjust the two engine-stop bolts, and tighten lock nuts.

CUTTER CAGE REMOVAL/CHANGE

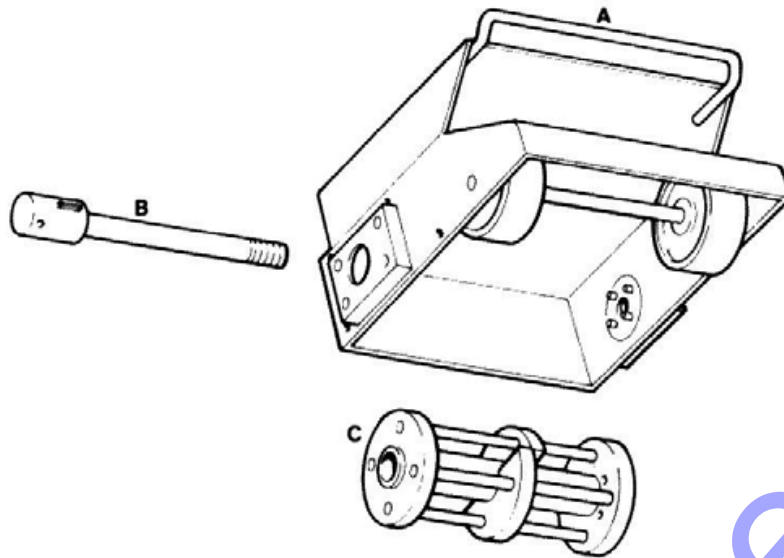
1. Make sure that the power source is disconnected. With gas models turn off fuel supply to engine and disconnect sparkplug; unplug electric unit; disconnect air supply on air unit.
2. Tilt machine back onto the handle. (If your unit is equipped with a Honda GX engine, unit must be tilted forward to change cutters or cylinders will be flooded with oil).
3. Facing the underside of the machine housing (figure 3-A) place a bar between the cutter rods to jam cage C.
4. Remove end cap and with a 1" (26 mm) socket loosen and remove the shaft by turning in clockwise direction or remove end cap and shaft guard to insert a drift pin into the hole on the main shaft B and turn shaft clockwise to loosen and remove shaft.
5. Disengage the cage from the drive pins by moving to the left. (The cage on the Honda GX machines will move to the right). Remove cage.

EDGER CAGE REMOVAL

1. Make sure that the power source is disconnected. With gas models turn off fuel supply to engine and disconnect sparkplug; unplug electric unit; disconnect air supply on air unit.
2. Tilt machine back onto handle. (If your unit is equipped with a Honda GX engine, unit must be tilted forward to change cutters or cylinders will be flooded with oil).
3. Using a 15/16" socket or wrench, turn head of shaft (G) clockwise to loosen.
4. While turning the shaft outwards, cage will move towards the outer edge as well. Free cage from locking pins on shaft by pushing cage back towards main housing (A). Turn shaft out and move.

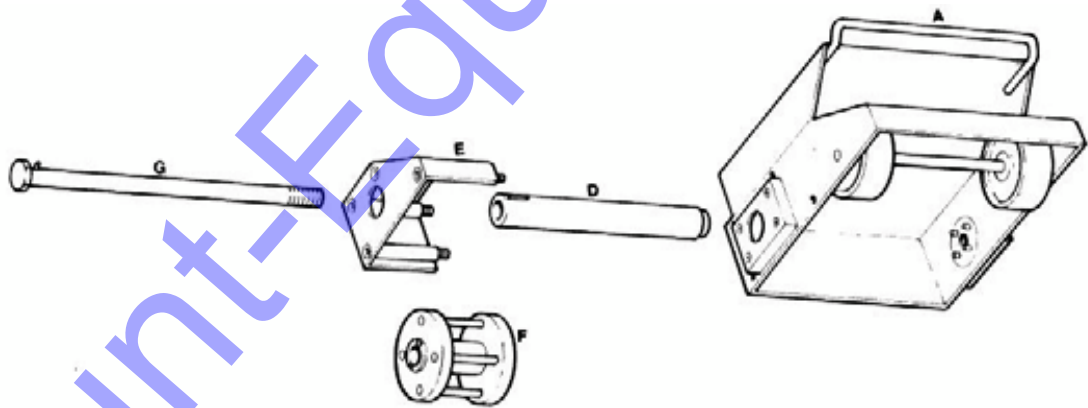
5. Cage will be free to remove from edger.

Figure 3A



CHANGING CUTTERS/SHAFTS

1. Once the cage has been removed use a 5/32" Allen Key and 7/16" open end wrench, remove screws and cover plate from cage. With drift pin tap rods from the drive side until free of cage. Replace cutters or shafts as required. Replace cover plate. To re-install cutter cage in machine, reverse procedure for removal. Ensure that the shaft is tight.



11. MAINTENANCE SCHEDULE

1. Check all hardware after the first 5 hours of use, the follow the maintenance schedule.

Maintenance Services Intervals		<i>After every use</i>	<i>After 45 days or 50 hrs.</i>	<i>Every 3 months or 100 hrs.</i>	<i>Every 6 months or 200 hrs.</i>	<i>Every 9 months or 300 hrs.</i>	<i>Every 12 months or 400 hrs.</i>
General Inspection:							
Guards	Check		X	X	X	X	X
Warning stickers	Check		X	X	X	X	X
Wheels	Check operation	X	X	X	X	X	X
Test run	Check operation		X	X	X	X	X
Engine:							
Engine oil	Check level	X	X	X	X	X	X
	Change		X		X		X
Engine oil filter	Replace				X		X
Oil cooler	Clean			X	X	X	X
Cooling Fins	Clean		X	X	X	X	X
Air cleaner	Check - clean	X	X	X	X	X	X
	Replace						X
Air Intake Line	Check				X		
	Replace						2 years
Fan Belt	Check tightness				X		X
	Replace						500 hrs.
Valve clearance	Check-adjust				X		X
Fuel filter	Check & clean			X	X	X	X
	Replace				X		X
Fuel Tank	Clean						500 hrs.
Engine wiring	Check						X
Cage:							
Teeth: (see Individual Cage for specifications)	Check wear	X	X	X	X	X	X
	Change						
Shaft: (see Individual Cage for specifications)	Check wear	X	X	X	X	X	X
	Change						

12. REPLACEMENTS

Parts

Engine Components

V-Belts

Cutters

Hardware

Safety Decals

Tolerance or Replacement Cycle

- ✓ Refer to your engine manufacturer's Owner's Manual
- ✓ Replace if stretched to the point that the idler does not work properly. Replace the V-belts if they are cracked or torn.
- ✓ Replace if Cutters present any missing segments or stress cracks.
- ✓ Re-torque all bolts after the first eight hours of operation and check hardware every 25 hours. Replace any worn or damaged hardware as needed. Replacement hardware should be grade 5 and zinc plated.
- ✓ Replace if they become aged, damaged or cannot be easily read.

13. TORQUE CHART

APROXIMATE TIGHTENING TORQUE

<u>SIZE</u>	<u>GRADE 2</u>	<u>GRADE 5</u>	<u>GRADE 8</u>
# 10-24	21 in-lbs	32 in-lbs	45 in-lbs
# 10-32	23 in-lbs	36 in-lbs	51 in-lbs
1/4-20	49 in-lbs	76 in-lbs	9 in-lbs
1/4-28	56 in-lbs	87 in-lbs	10 in-lbs
5/16-18	8 in-lbs	13 in-lbs	18 in-lbs
5/16-24	9 in-lbs	14 in-lbs	20 in-lbs
3/8-16	15 in-lbs	23 in-lbs	33 in-lbs
3/8-24	17 in-lbs	26 in-lbs	37 in-lbs
7/16-14	24 in-lbs	37 in-lbs	52 in-lbs
7/16-20	27 in-lbs	41 in-lbs	58 in-lbs
1/2-13	37 in-lbs	57 in-lbs	80 in-lbs
1/2-20	41 in-lbs	64 in-lbs	90 in-lbs
9/16-12	53 in-lbs	82 in-lbs	115 in-lbs
9/16-18	59 in-lbs	82 in-lbs	129 in-lbs
5/8-11	73 in-lbs	112 in-lbs	159 in-lbs
5/8-18	83 in-lbs	112 in-lbs	180 in-lbs
3/4-10	129 in-lbs	223 in-lbs	282 in-lbs
3/4-16	144 in-lbs	200 in-lbs	315 in-lbs
7/8-9	125 in-lbs	322 in-lbs	454 in-lbs
7/8-14	138 in-lbs	355 in-lbs	501 in-lbs

APROXIMATE TIGHTENING TORQUE

<u>SIZE</u>	<u>GRADE 2</u>	<u>GRADE 5</u>	<u>GRADE 8</u>
1-8	188 ft-lbs	483 ft-lbs	682 ft-lbs
1-12	205 ft-lbs	529 ft-lbs	746 ft-lbs
1-14	210 ft-lbs	541 ft-lbs	764 ft-lbs
1-1/8-7	266 ft-lbs	596 ft-lbs	966 ft-lbs
1-1/8-12	297 ft-lbs	668 ft-lbs	1083 ft-lbs
1-1/4-7	375 ft-lbs	840 ft-lbs	1363 ft-lbs
1-1/4-12	415 ft-lbs	930 ft-lbs	1509 ft-lbs
1-3/8-6	491 ft-lbs	1102 ft-lbs	1787 ft-lbs
1-3/8-12	559 ft-lbs	1254 ft-lbs	2034 ft-lbs
1-1/2-6	652 ft-lbs	1462 ft-lbs	2371 ft-lbs
1-1/2-12	734 ft-lbs	1645 ft-lbs	2668 ft-lbs
M 6	3 ft-lbs	4 ft-lbs	7 ft-lbs
M 8	6 ft-lbs	10 ft-lbs	18 ft-lbs
M 10	10 ft-lbs	20 ft-lbs	30 ft-lbs

CONVERSIONS

in - lbs x 0.083 = ft-lbs

ft - lbs x 12 = in-lbs

ft - lbs x 0.1383 = kg-m

ft - lbs x 1.3558 = N-m

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