

## RECIPROCATING AERATOR



MODELS: RA-21HE

**Reciprocating Aerator Honda GX160** 

MAN 4170966 Rev A. 06-2014 Original Language Instructions



# CALIFORNIA Proposition 65 Warning

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

## **A** WARNING

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

# CALIFORNIA Proposition 65 Warning

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

WASH HANDS AFTER HANDLING.

#### **IMPORTANT MESSAGE**

Thank you for purchasing this Classen product. You have purchased a world class product, one of the best designed and built anywhere.

This machine comes with an Operation and Safety Manual, Parts and Service Manual, and Engine Manual. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand these manuals. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Classen product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manuals thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a Classen dealer for any service or parts needed. Classen service ensures that you continue to receive the best results possible from Classen products. You can trust Classen replacement parts because they are manufactured with the same high precision and quality as the original parts.

Classen designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manuals, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

# Classen Schiller Grounds Care, Inc. 1028 Street Road Southampton, PA 18966-4217

#### 

Operator's Manual 4170965



This Operator / Parts Manual is part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine.

06-2014 **1** 

#### NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Schiller Grounds Care, Inc. strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Schiller Grounds Care, Inc.'s Engineering Department. Any Schiller Grounds Care, Inc. product that is altered, modified or changed in any manner not specifically authorized after original manufacture—including the addition of "after-market" accessories or component parts not specifically approved by Schiller Grounds Care, Inc.—will result in the Schiller Grounds Care, Inc. Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Schiller Grounds Care, Inc. will be considered the responsibility of the individual(s) or company designing and/or making such changes. Schiller Grounds Care, Inc. will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:

## ATTENTION! BECOME ALERT!

Your safety and the safety of others is involved.

#### Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Schiller Grounds Care, Inc. machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

#### **A** DANGER

**DANGER** indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

### **AWARNING**

**WARNING** indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

#### **A**CAUTION

**CAUTION** indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

#### **CAUTION**

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage.



**MODEL NUMBER:** This number appears on sales literature, technical manuals and price lists.

**SERIAL NUMBER:** This number appears only on your unit. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

## **RA-21**:

#### **MAINTENANCE SAFETY**

#### In general

- Read and understand the manual before maintenance on machine.
- Maintain machine according to manufacturer's schedule and instructions for maximum safety and best results.
- Park machine on level ground.
- Never allow untrained personnel to service machine.
- Guards should only be removed by a qualified technician for maintenance or service. Replace when work is complete.
- Adjust or repair only after the engine has been stopped and the tines have quit rotating.
- Replace parts if worn, damaged or faulty.
   For best results, always replace with parts recommended by the manufacturer.
- Disconnect spark plug wire(s) before making any repairs.
- Do not dismantle the machine without releasing or restraining forces which may cause parts to move suddenly.
- Provide adequate support, e.g. jackstands for lifted machine or parts if working beneath.
- Do not put hands or feet near or under rotating parts.
- Clean up spilled oil or fuel thoroughly.
- Replace faulty mufflers.
- To reduce fire hazards, keep the engine, muffler, and fuel storage area free of grass, leaves, debris buildup or grease.

#### **Tines**



- Tines are sharp and can cut. Use extra caution when handling. Wear appropriate personal protective equipment.
- Only replace tines. Never straighten or weld them.
- Keep other persons away from tines.

#### **Fuel**



 Petrol (gasoline) and diesel fuels are flammable; petrol (gasoline) vapors are explosive. Use extra care when handling.



- Store only in containers specifically designed for fuel.
- When refueling or checking fuel level:
  - Stop the engine and allow to cool;
  - Do not smoke;
  - Refuel outdoors only;
  - Use a funnel;
  - Do not overfill;
  - If fuel is spilled, do not attempt to start the engine until the spill is cleaned up and vapors have cleared.
  - Replace caps on fuel containers and tanks securely.

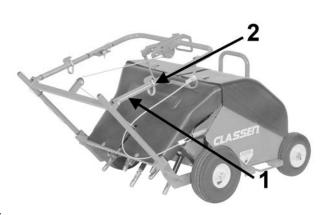
Sparks from static electricity can start fires or cause explosions. Flowing fuel can generate static electricity. To prevent static electricity sparks:

- Keep fuel containers electrically grouded.
- Do not fill containers in a vehicle or on a truck or trailer bed with a plastic liner. Fill containers on the ground away from the vehicle.
- When practical, remove gas powered equipment from the truck or trailer and refuel it on the ground. If equipment must be refueled on the truck or trailer, refuel from a portable container rather than a dispenser nozzle.
- Keep the dispenser nozzle in contact with the rim of the fuel tank or container opening until fueling is complete. Do not use a nozzle lockopen device.

#### **SET-UP INSTRUCTIONS**

#### NOTE: Units ship with no gas or oil!!

- 1. Cut banding and roll aerator off pallet.
- 2. Unfold by pulling up on handle 1. Slide lock rings 2 down to lock handle in upright position.
- Add oil to the engine and gearbox with the engine resting in a level position. Refer to the engine manufacturer's Owners manual for the correct type and amount of oil.
- 4. Fill the fuel tank according to the engine manufacturer specifications.



#### **MAINTENANCE**



#### WARNING

Stop the engine and remove spark plug wire before performing any maintenance.

When replacement parts are required, use genuine Classen parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or bystanders.

Carbon monoxide present in the exhaust is an odorless and deadly gas. Never start or run the engine where exhaust fumes can collect. Provide enough fresh air to keep fumes from getting too strong. Replace any warning decals that become illegible immediately.

#### DAILY MAINTENANCE

#### **Hardware**

- Tighten any hardware (nuts, bolts, etc) that are found loose.
- Replace any broken or missing hardware (nuts, bolts, cotter pins, etc.).
- Check to see that set screws on pulley are tight.

#### **Engine**

See engine manual for oil change intervals and oil and gas specifications. See engine manual for air cleaner service intervals and servicing procedure.

#### **AERATOR SERVICE**

Stop engine and remove spark plug wire before servicing aerator.

#### **Tines**

- Check condition of guards for damage or wear.
- Replace broken, worn, or damaged tines. Do not weld or try to straighten tines.

#### Guards

- Check condition of guards for damage or wear.
- Replace broken, worn, or damaged shield plates.

#### **Belts**

- Check condition of belts for damage or wear.
- · Replace broken, worn, or damaged belts.

#### **Belt Replacement**

 Stop the engine and disconnect the spark plug wire before attempting to replace any belt.

#### Lubrication

Grease the crankshaft and arm bearings every 25 hours of operation.

#### STORAGE INSTRUCTIONS

#### **A** WARNING

To prevent possible explosion or ignition of vaporized fuel, do not store equipment with fuel in tank or carburetor in enclosure with open flame (for example, a furnace or water heater pilot light).

#### **Daily Storage**

- 1. Check engine oil level and air filter element daily.
- 2. Check oil level in gear case.
- 3. Close fuel valve at bottom of fuel tank.
- 4. Clean cutting blade (grass, dirt, etc.).

#### **EXTENDED STORAGE**

Before the equipment is put into storage for any period exceeding 30 days:

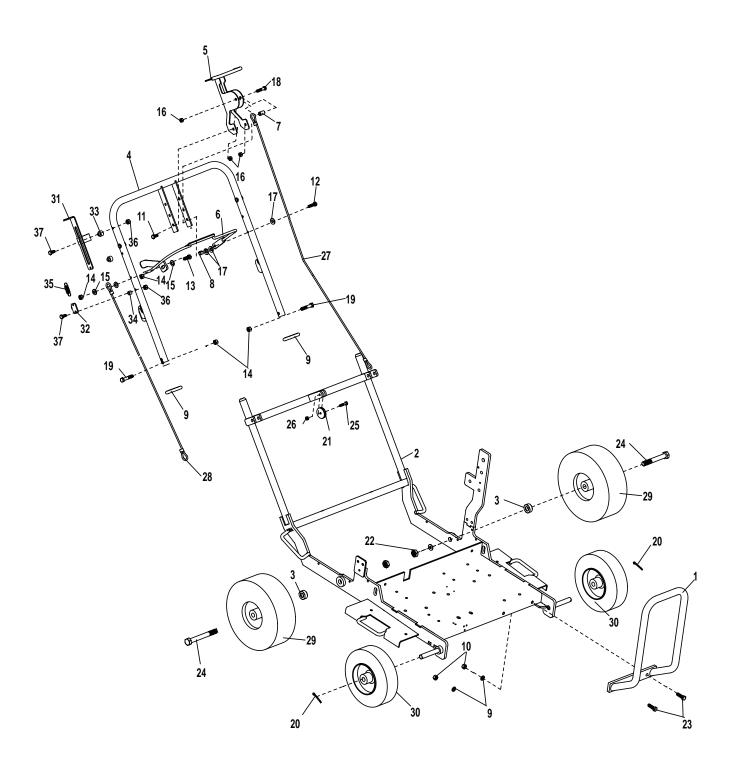
- 1. Drain all fuel from fuel tank and lines (use a hose or fuel line, routed from fuel tank shut-off to proper container).
- 2. Start engine and run until all fuel is used from the carburetor float bowl.
- 3. While engine is warm, drain the crankcase oil and refill with the proper weight of oil corresponding to the season when the equipment will next be used.
- 4. Remove the spark plug and squirt a small quantity of engine oil into the cylinder. Turn the engine over a few times to distribute the oil.
- 5. Lubricate all lubrication fittings.
- 6. Clean and oil cutting blade to prevent rust.

To put equipment into operation after an extended storage:

- 1. Fill fuel tank with clean fresh fuel.
- 2. Check crankcase oil level, and start engine.
- 3. Check fuel system for fuel leaks.

RA-21 Dimensions: Width Length Length (handle folded) Height (transport) Height (handle folded) Maximum gate Width	31.5" (800 mm) 64" (1626 mm) 49" (1245 mm) 39" (991 mm) 24" (610 mm) 32" (813 mm)
Net Weight: WeightRemovable weights	261 lbs. (119 Kg) N/A
Speed: Aerate	up to 305 f.p.m. (2.84 km/h)
Engines: Model RA-21HE Model	GX160 Honda, 4.8 h.p., 4 cycle Recoil, on/off switch 3600 RPM, no load 1400 + 100 RPM .825 gal. (3.1 L) 6 to 1
Drive: Machine Primary	Push off the tines Sheaves and Belts
Wheels: Front Rear	2.80-4 4.10 x 3.50 -4
Penetration DepthSwath Width	875 mm) diameter, 8 per unit 2 3/4" (70 mm) max. 20.8" (558 mm) 7.5" (66 x 191 mm) on center q. ft. / hour (2415 sq.m /hour)

# PARTS SECTION

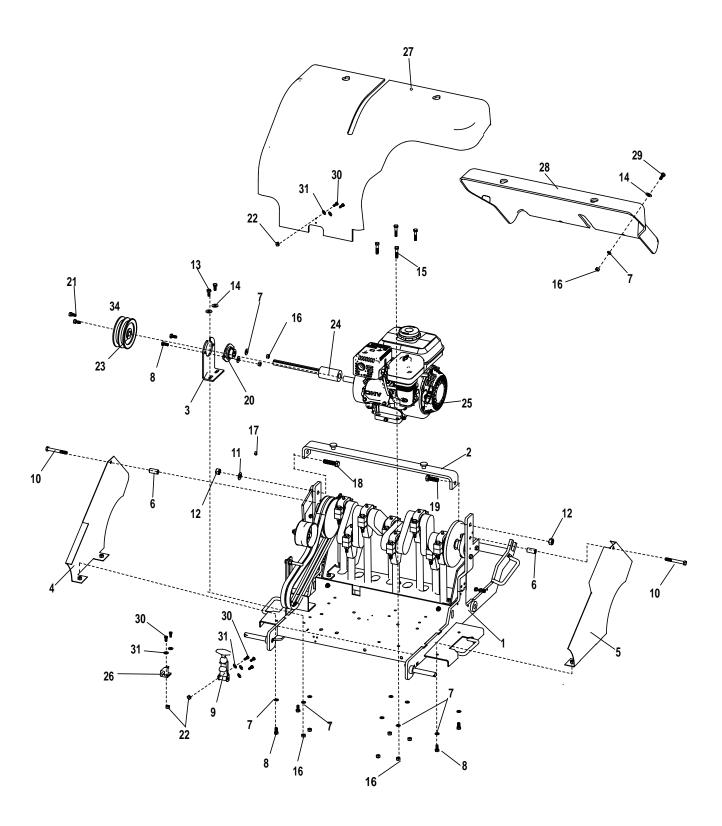


# **RA-21**

#### FIGURE 1

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	C400237	BUMPER, 8.0 HP	1				
2	C400414	MAIN DECK	1				
3	C500286	NUT, 5/8-18 FINE JAM NYL	.C 2				
4	4171016	MAIN HANDLE WLDMNT C					
5	C400425	TINE HANDLE	1				
6	C400428	CRANK TENSION BAIL	1				
7	C400429	TINE BUSHING	1				
8	C400448	SPACER BUSHING	1				
9	C100251	RING, HANDLE LOCK	2				
10	C500129	NUT, 3/8-16	2				
11	C500140	BOLT, 5/16-18 x 3/4	1				
12	C500074	BOLT, 5/16-18 X 1-3/4	1				
13	C500146	BOLT, 3/8-16 X 1-1/2	1				
14	C500041	NUT, 3/8-16 LOCK	3				
15	C500042	WASHER, 3/8" FLAT	2				
16	C500169	NUT, 5/16-18 LOCK	3				
17	C500083	WASHER, 5/16 FLAT	3				
18	C500147	BOLT, 5/16-18 x 1-1/2	1				
19	C500091	BOLT, 3/8-16 x 2	2				
20	C500016	PIN, 5/32" x 1-1/4" COTTER	R 2				
21	C100270	TINE PULLEY	1				
22	C500077	5/8-18 JAM NUT	2				
23	C500134	BOLT, 3/8-16 x 1-1/4	2				
24	C500287	BOLT, 5/8 X 5	2				
25	C500218	BOLT, 1/4-20 X 1-3/4	1				
26	C500136	NUT, 1/4-20	1				
27	C100657	CABLE, BOARD LIFT	1				
28	C100656	CABLE, TINE ENGGMNT	1				
29	C100103	WHEEL TIRE ASSLY10"	2				
30	C100648	TIRE, 9" WHEEL	2				
31	4171003.17	HANDLE, LOCK	1				
32	4171004.17	TAB, LOCK	1				
33	4171005	SPACER, STEP	2				
34	4171017.17	SPACER, 1/4"	1				
35	C100027	SPRING, ENGINE	1				
36	C500068	NUT, NYLOC 1/4-20	3				
37	64123-60	BOLT, 1/4-20X2"	3				
38*	C100737	HARNESS, RA-21 WIRE	1				
39*	C100718	LABEL-ON/OFF	1				

#### \*NOT ILLUSTRATED

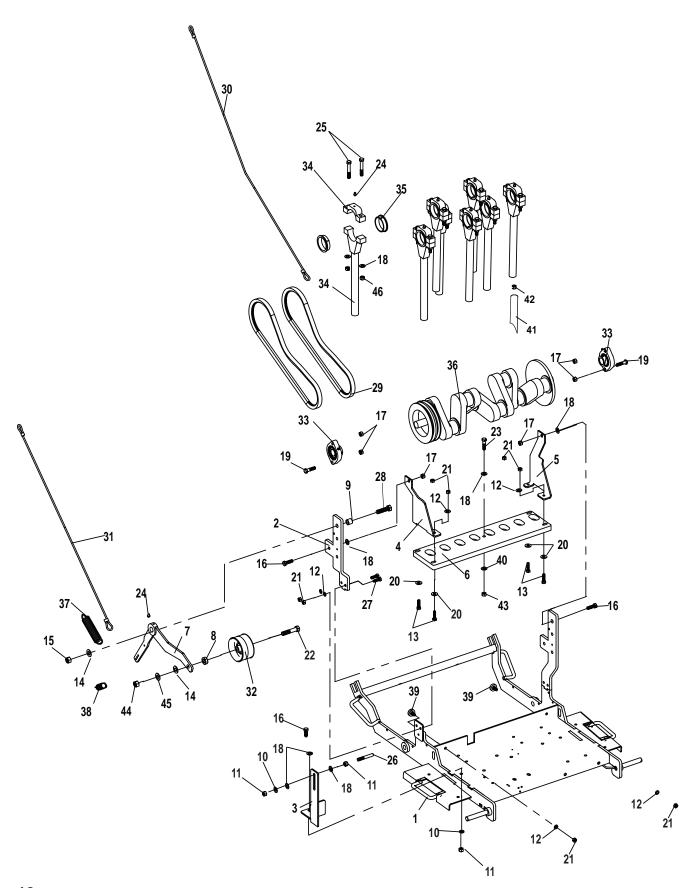


**RA-21** 

#### FIGURE 2

ITEI	M PART N	O. DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	C400414	MAIN DECK	1				
2	C400417	TOP CROSSBAR WLDMNT	1				
3	C400420	BEARING MOUNT	1				
4	C400449	S-GUARD, SIDE, RIGHT	1				
5	C400438	S-GUARD SIDE, LEFT	1				
6	C400446	SIDE GUARD BUSHING	2				
7	C500115	WASHER, 5/16 LOCK	16				
8	C500140	BOLT, 5/16-18 x 3/4	6				
9	C100665	LATCH RUBBER HOOD	1				
10	C500020	BOLT, 3/8-16 x 2-1/2	2				
11	C500043	WASHER, 1/2 FLAT	1				
12	C500131	NUT, 1/2-13 LOCK	2				
13	C500133	BOLT-5/16-18 x 1	2				
14	C500083	WASHER, 5/16 FLAT	6				
15	C500147	BOLT, 5/16-18 x 1-1/2	4				
16	C500101	NUT, 5/16-18	8				
17	C500001	GREASE FITTING, 1/4 x 28	1				
18	C500149	BOLT, 1/2-13 x 2	1				
19	C500150	BOLT, 1/2-13 x 1-1/2	1				
20	C100247	BEARING W/COLLAR, 1"	1				
21	C500029	BOLT, 1/4-20 x 3/4	2				
22	C500263	WASHER, 10-24 LOCK	7				
23	C100651	PULLEY, 2BK47	1				
24	C200058	COUPLER SHAFT, RECIP.	1				
25	C100715	ENGINE-HONDA GX160	1				
26	C100649	SWITCH, KILL	1				
27	C100690	PLASTIC COVER, FRONT	1				
28	4171052	S-PLASTIC COVER, BACK	1				
29	C500074	BOLT, 5/16-18 x 1-3/4	2				
30	C500290	BOLT #10-24 x 1	7				
31	C500269	NUT, #10	7				
	4170118	DECAL-CLASSEN	2				
	4171012	DECAL-CE RA-21	1				
	4168759	DECAL-WARN, HAND EU	2				
	C100716	DECAL,RA-21	1				
36*	C100725	EDGING STRIP, RUBBER	4				

#### \*NOT ILLUSTRATED



## **RA-21**

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	C400414	MAIN DECK	1				
2	C400416	RIGHT UPRIGHT SUPPORT	Γ1				
3	C400419	BELT TENSIONER	1				
4	C400422	RIGHT UHMW GUIDE ARM	1				
5	C400423	LEFT UHMW GUIDE ARM	1				
6	C400424	UHMW BLOCK	1				
7	C400426	BELT TENSION ARM	1				
8	C400427	IDLER PULLEY BUSHING	1				
9	C400442	TENSION ARM BUSHING	1				
10	C500130	WASHER, 3/8 LOCK	2				
11	C500129	NUT, 3/8-16	3				
12	C500115	WASHER, 5/16 LOCK	8				
13	C500147	BOLT, 5/16-18 X 1-1/2	4				
14	C500034	WASHER, 1/2 FLAT	2				
15	C500131	NUT, 1/2-13 LOCK	1				
16	C500043	BOLT, 3/8-16 X 1	1				
17	C500041	NUT, 3/8-16 LOCK	6				
18	C500042	WASHER, 3/8" FLAT	21				
19	C500134	BOLT, 3/8-16 x 1-1/4	2				
20	C500083	WASHER, 5/16 FLAT	4				
21	C500101	NUT, 5/16-18	8				
22	C500135	BOLT, 1/2-13 x 2-1/2	1				
23	C500218	BOLT, 1/4-20 x 1-1/4	1				
24	C500001	GREASE FITTING, 1/4 x 28	9				
25	C500265	BOLT 3/8-16 x 2.25 HHCS	16				
26	C500170	BOLT 3/8 x 3-1/2 HEX	1				
27	C500133	BOLT, 5/16-18 x 1	2				
28	C500149	BOLT, 1/2-13 x 2	1				
29	C100681	TINE DRIVE BELT	2				
30	C100657	CABLE, BOARD LIFT	1				
31	C100656	CABLE, TINE ENGMNT	1				
32	C100208	PULLEY, IDUAL IDLER	1				
33	C100650	BEARING, 1" - 2 BOLT	2				
34	C100621	TINE ROD	8				
35	C100678	CNNCTING ROD BRNG	16				
36	C100622	CRANKSHAFT	1				
37	C100654	SPRING, MEDIUM	1				
38	C100655	SPRING, SMALL	1				
39	C100652	BUMPER, RUBBER 3/8x 1	2				
40	C500088	WASHER, 1/4 FLAT	1				
41	C100679	TINES, 5/8"	8				
42	C500293	NUTS, COURSE THRD TINE	8				
43	C500139	NUT, 1/4-20 LOCK	1				
44	C500106	NUT, 1/2-13	1				
45	C500006	WASHER, 1/2 LOCK	1				
46	C500076	NUT, 3/8-16 NYLOC	16				
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# 2 YEAR LIMITED SERVICE AND WARRANTY POLICY

Schiller Grounds Care, Inc.

1028 Street Road • Southampton, PA 18966

Telephone: 1-800-366-6268

#### TWO YEAR LIMITED WARRANTY

Effective April 1, 2007

For the period of two years from the date of purchase, CLASSEN MFG., INC. will repair or replace for the original purchaser free of charge, any part or parts found upon the examination of our factory authorized service station, or by the factory in Southampton, PA, to be defective in material or workmanship. All transportation charges on parts submitted for repair or replacement under this warranty shall be borne by the purchaser.

This warranty does not include engines or engine parts, tires, batteries, or gearboxes that are covered under separate warranties furnished by their manufacturer or supplier, nor does it include normal maintenance parts, including but not limited to, spark plugs, points, filters, blades, and lubricants.

All service under this warranty will be furnished or performed by our factory authorized service stations.

There is no other expressed warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to two years from the date of purchase and to the extent permitted by law, any and all implied warranties are excluded. The above remedy of repair and replacement of defective parts is the purchaser's exclusive remedy for any defect, malfunction or breach of warranty. Liability for incidental or consequential damages under any and all warranties is excluded to the extent permitted by law.

#### NORMAL RESPONSIBILITIES OF THE SELLER AND THE USER

- 1. The Distributor or Dealer is responsible for the proper assembly and preparation of the product for delivery to the end user.
- 2. The User is responsible for reading the Manual and Instructions.
- 3. The User is responsible for proper operation and maintenance as described in the manual.
- 4. The User is responsible for the replacement of wear items such as blades, belts, tires, batteries, etc.
- 5. The User is responsible for damage due to improper operation and maintenance, as well as abuse.

All claims must be received by the factory 30 days after the end of the warranty period to receive warranty consideration.

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