LAWN-BOY SUBURBAN WPM SERVICE MANUAL

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LAWN-BOY®

SERVICE MANUAL

Suburban Mowers

Models 6230
6430
8430
8480

1. GENERAL INFORMATION

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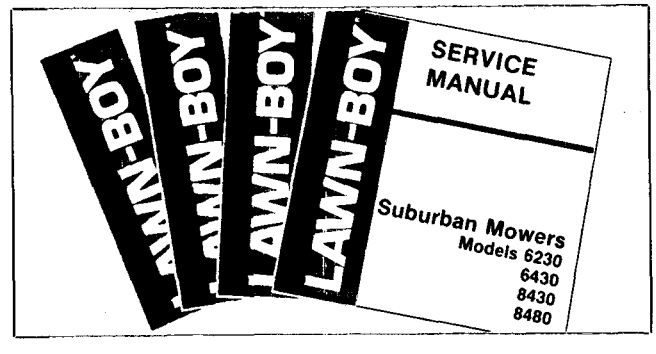
THIS MANUAL

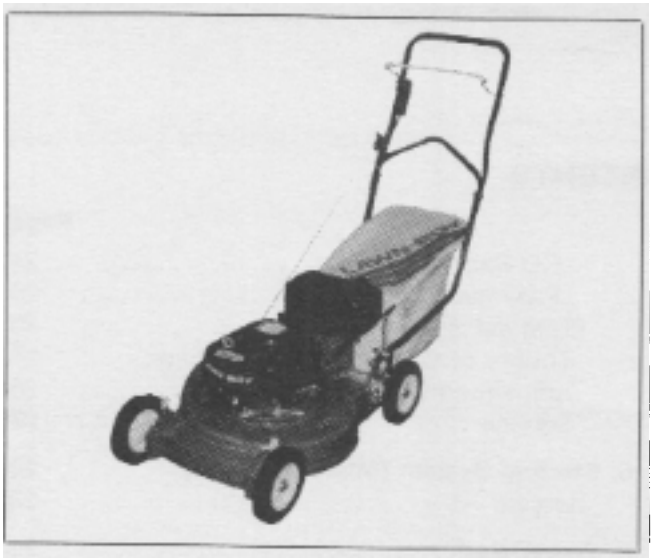
This manual was developed especially for Suburban model mowers.

It relies heavily yet **selectively** on the comprehensive Lawn Boy Service Manual.

Service technicians, especially when relatively new to Lawn Boy's system and products, should refer to the Lawn Boy Service Manual for further details and illustrations.



SUBURBAN MOWER MODELS



Model 6230

Model 6430

Model 8430

Model 8480

GENERAL FEATURES AND SPECIFICATIONS

MODEL	MOWER CUTTING WIDTH	WHEEL POSITION	DISCHARGE	PROPULSION
6230	20"	Four Square	Rear	Push
6430	21"	Staggered	Side	Push
8430	21"	Staggered	Side	Self-Propelled
8480	20"	Four Square	Rear	Self-Propelled; Auto-variable Speed
ALL	Starter-Manual, Top Mounted, Zone Restart Primer - Shroud Mounted Lower Transmission Case - Die Cast Aluminum			

SAFETY

SYMBOLS

WARNING This symbol warns you of steps that must be followed to avoid personal injury or death.

CAUTION This alerts you to steps that must be followed to avoid possible damage to property.

NOTE This highlights important information.

WARNING Read, understand and follow all rules in this section before operating or servicing Suburban Mowers.

MOWER, INTENDED USE

This mower is designed **only** to mow (cut) grass, or when properly equipped, to bag cut grass.

Any other use may be dangerous.

FIRE HAZARD

General

Gasoline is extremely flammable and highly explosive under certain conditions. Follow all rules listed below to avoid fire, explosion and serious or fatal injury.

Refueling or Mixing Fuel

1. Stop engine.
2. Wait for engine to cool.
3. Do not smoke or allow flame, sparks or any heat source near gasoline or fuel.
4. Fill outdoors only.
5. Wipe up spilled gasoline and fuel.
6. Replace fuel tank cap securely.
7. Move mower away from fueling area before starting.

Operation

8. Keep engine free from debris such as grass and excess grease which are fire hazards.

Storage and Handling

9. Store and handle gasoline only in approved containers.
10. Keep fuel shut-off valve closed.
11. Do not store mower with fuel in carburetor or tank in an enclosed area with source of ignition such as a furnace pilot light or electric motor.

EXHAUST HAZARD

1. Never start or run engine indoors: it will produce carbon monoxide which is odorless and deadly.

Keep Heat and Ignition Sources Away From Fuel.

BEFORE USE

Mowing Area

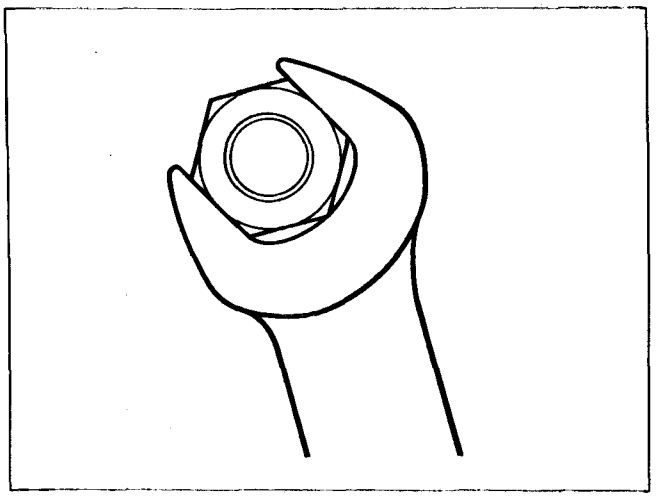
1. Clear mowing area of all foreign objects such as sticks and stones which can be thrown and cause severe injury.
2. Keep children and animals away from mowing area.

Clothing

3. Do not wear loose fitting clothing or accessories (such as jewelry) which could get caught in moving parts, causing severe injury.
4. Wear heavy trousers and safety shoes to give maximum protection.

Mower

5. Disconnect spark plug and make a thorough inspection of mower several times a year.
6. Check all nuts, bolts and fasteners, especially the blade nut (torque is 540-600 in. lbs. [45-50 ft. lbs.]).
7. Keep all guards in place at all times.
8. Keep either cover plate or grass catcher chute with bag in place and secure at all times.
9. Check grass or leaf bag for wear or deterioration. Replace if necessary.



Keep Fasteners Tight.

STARTING AND OPERATION

General

1. Teach all safety rules and operating instructions to all users. Do not allow children to operate mower.

Starting

2. Make sure you are ready to mow.
3. Know your controls; know how to stop engine quickly; be sure control on self-propelled models is in "neutral" or locked out before starting or stopping.
4. Make sure mower is on level ground.

Mowing

5. Keep a firm hold on handle.
6. Control direction with hands on mower handle; never with feet on mower housing.
7. Always push mower, never pull.
8. On self-propelled auto-mowers, mow at a safe, reasonable speed; on other self-propelled mowers keep the same pace as mower. Do not lag behind or let mower pull you.
9. Always walk, never run.
10. Be sure of your footing at all times.

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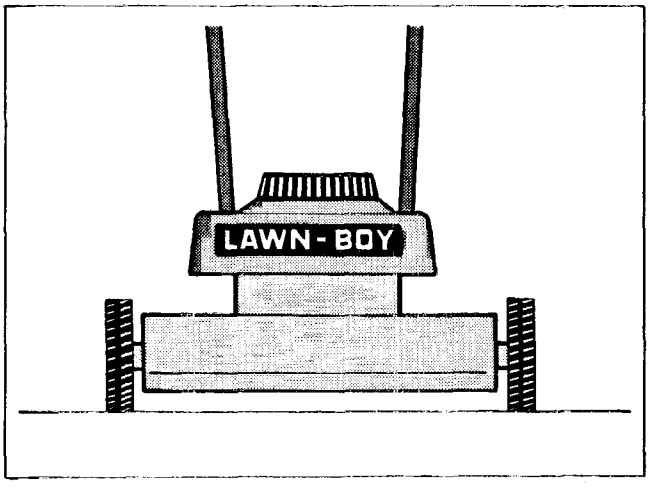


Start Mower On Level Ground.

STARTING AND OPERATION (CONTINUED)

Terrain and Mowing Conditions

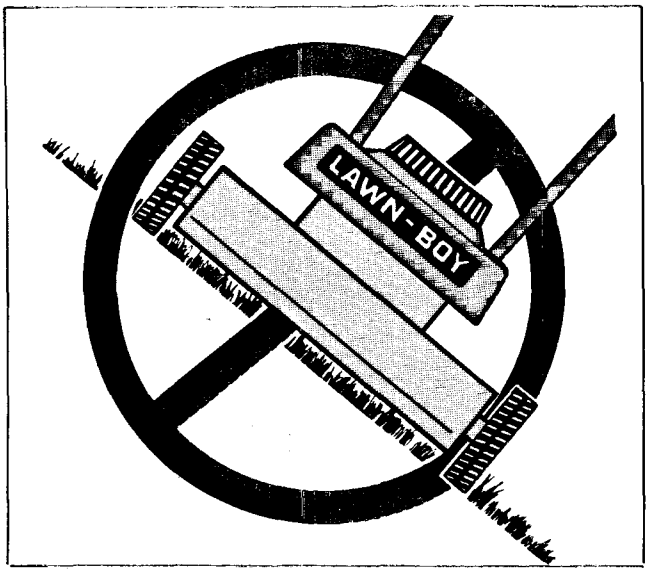
11. Mow across the face of slopes.
12. Do not mow steep slopes.
13. On uneven ground, be careful: housing can lift up and expose the blade which can cause serious injury.
14. Avoid striking anything such as a tree or mowing over any object such as a branch.
15. If an object is struck and/or the mower starts to vibrate, stop engine, disconnect spark plug to prevent accidental starting and repair any damage before restarting and operating mower.
16. Mow only in good light.
17. Never mow in wet grass: footing is unsafe.

Leaving The Operator's Position

18. Whenever you leave the operator's position, even for a moment, stop the engine.
19. Never stand in front of a self-propelled mower when it is running.
20. Keep clear of discharge chute.
21. Keep hands and feet away from moving parts.
22. Never place hands or feet under mower housing when blade is turning.
23. Before cleaning the catcher assembly or discharge chute, stop engine, disconnect spark plug and make sure blade has stopped turning.

Crossing Non-Grass Areas

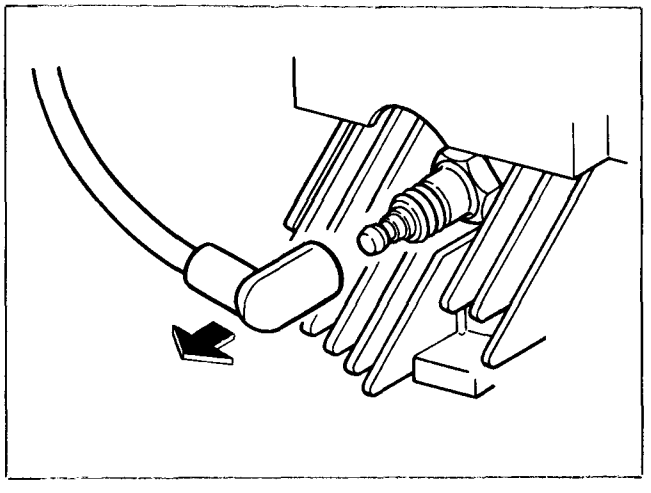
24. Stop engine before crossing any non-grass area such as a sidewalk or road.



Do Not Mow Steep Slopes.

ADJUSTMENTS

1. Disconnect spark plug lead before servicing engine or mower; and on self-propelled models, make sure control is in "neutral."
2. Never rotate blade with hand or foot without removing spark plug lead.
3. Do not overspeed engine or alter governor setting from specification.
4. When adjusting carburetor, stand to one side and keep feet and hands clear.
5. Make height adjustments only with engine and blade stopped.



Disconnect Spark Plug Before Servicing Mower.

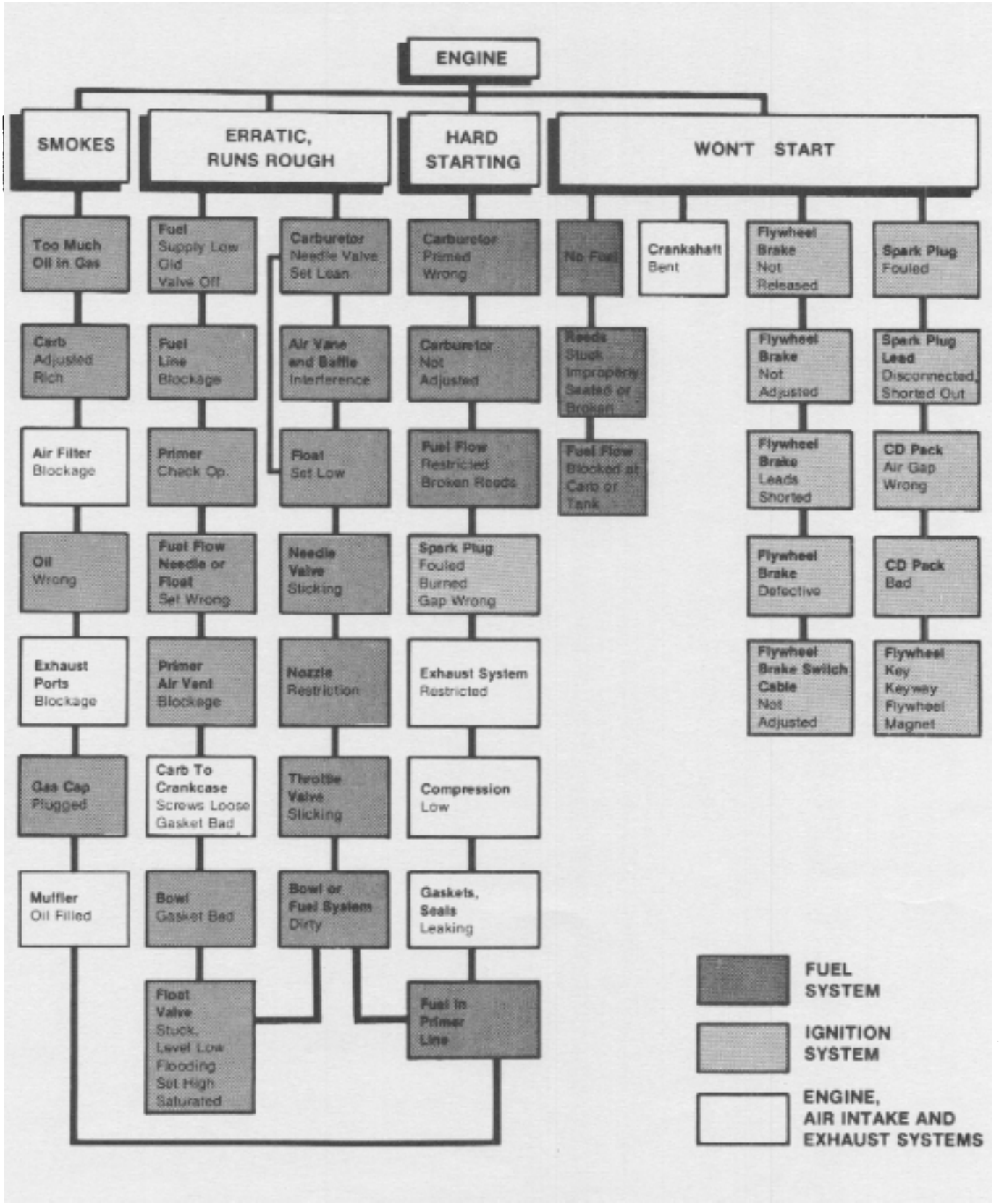
REPLACEMENT PARTS

Use genuine OMC parts or parts with equivalent characteristics such as type, strength and material.

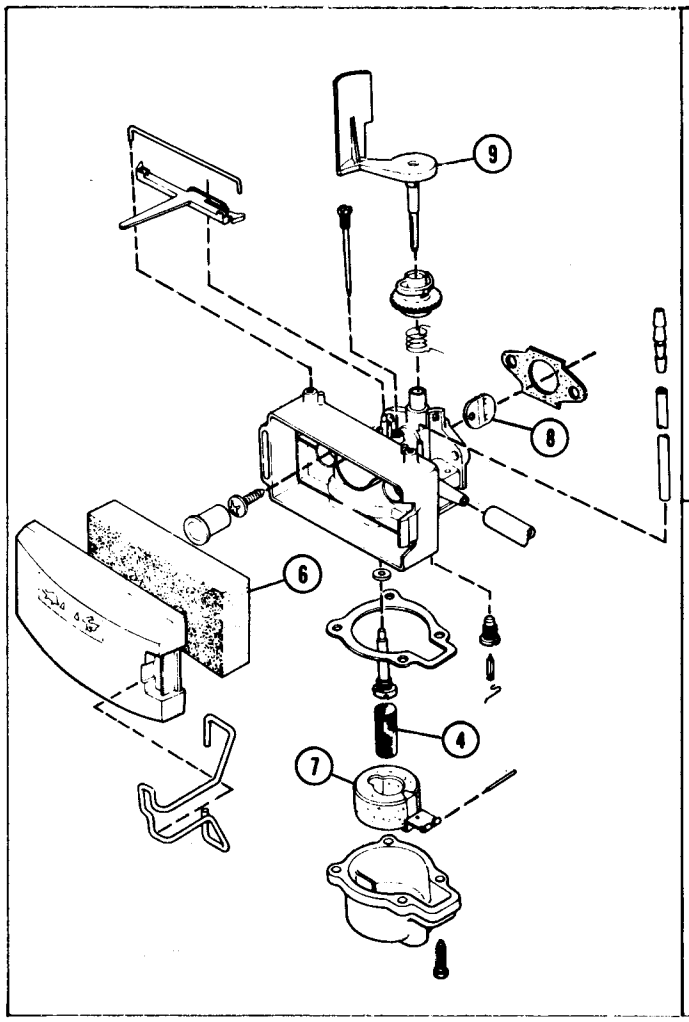
Failure to do so may result in product malfunction and injury to the operator or bystanders.

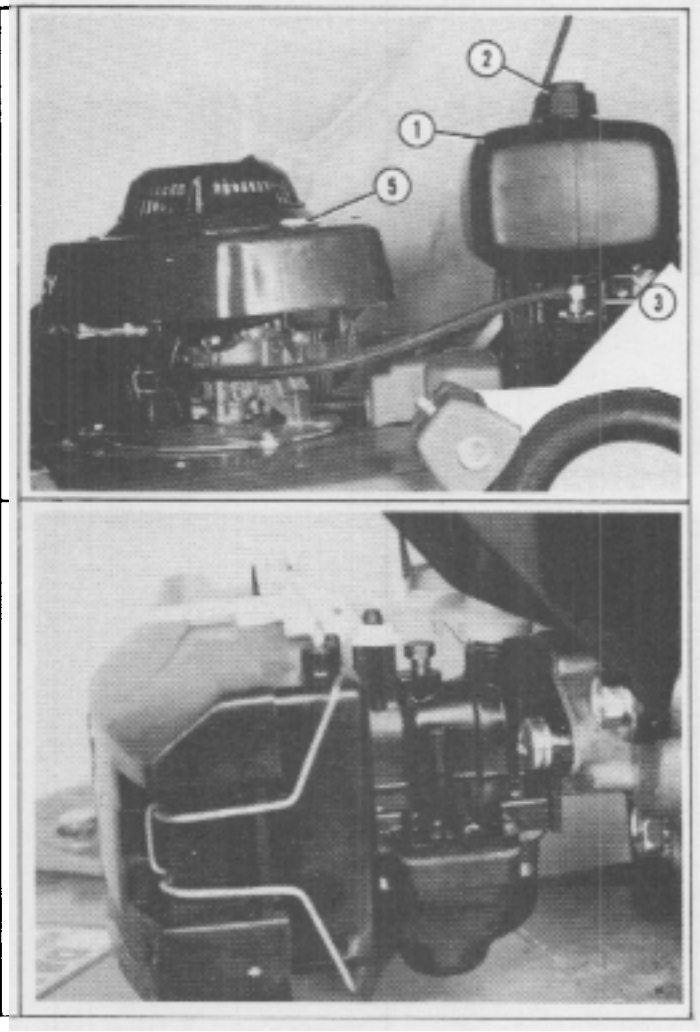
IT'S UP TO YOU. A MOWER IS NO SAFER THAN THE SERVICE TECHNICIAN AND THE OPERATOR.

2. TROUBLESHOOTING



3. FUEL SYSTEM





1. **Fuel Tank** — Stores fuel for engine.

2. **Vented Fuel Cap** — Vents fuel system to atmosphere.

3. **Shut-Off Valve** — Stops fuel flow to carburetor.

4. **Fuel Filter** — Filters out dirt and water, allowing only clean fuel to enter fuel line.

5. **Pneumatic Primer Assembly** — Forces compressed air into the float chamber which forces fuel into carburetor venturi.

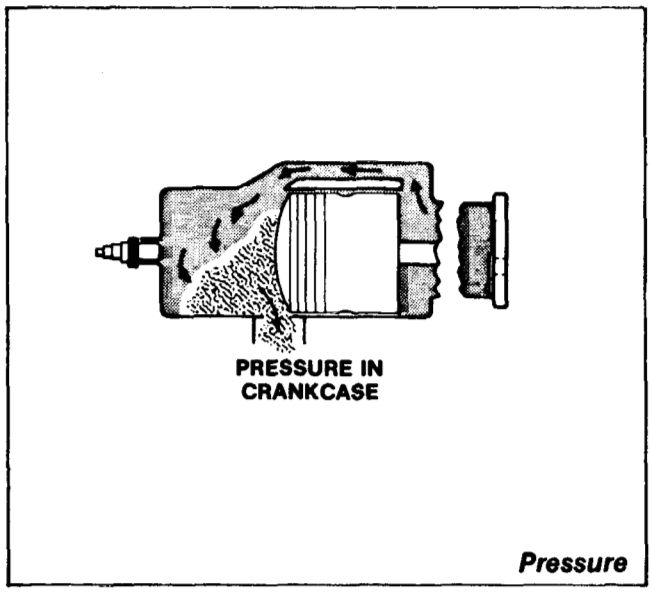
6. **Air Filter** — Keeps dirt from entering carburetor with air.

7. **Float Bowl** — Reservoir of fuel for metering to carburetor throat.

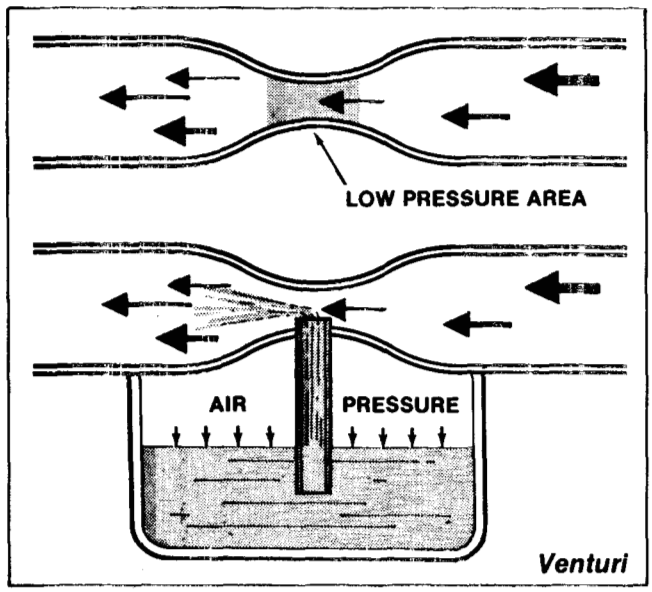
8. **Throttle Disc** — Varies the volume of fuel and air mixture to engine.

9. **Air Vane Governor** — Opens and closes throttle, controlling engine RPM.

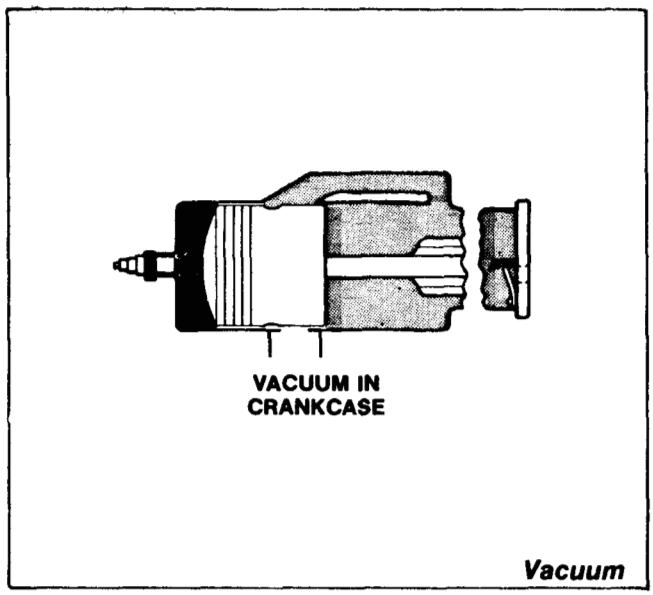
10. **Reed Valves** — Permit fuel mixture to enter crankcase on compression stroke and trap fuel mixture in crankcase on power stroke. (Not shown.)



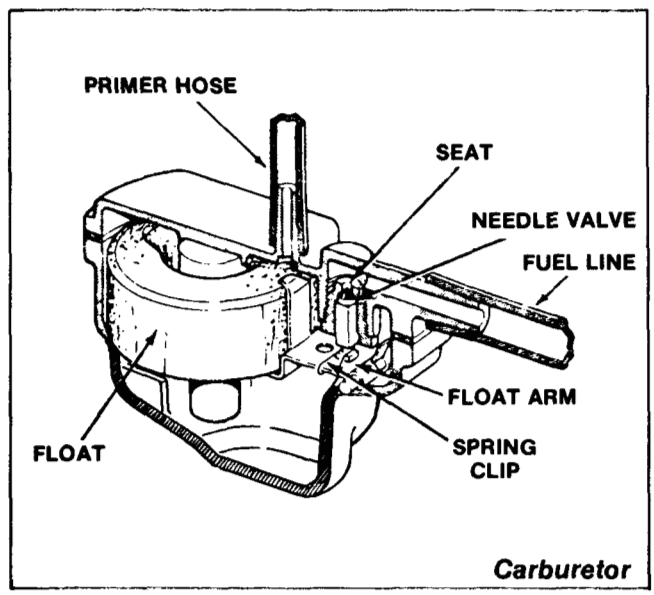
Pressure



Venturi



Vacuum



Carburetor

THEORY OF OPERATION

1. Pulling the starter rope rotates the crankshaft which moves the piston up and down in the cylinder and creates alternating pressure and vacuum in the crankcase.
2. The vacuum created by upward movement of the piston in the cylinder opens a reed valve and air rushes through the throat of the carburetor.
3. The carburetor throat is a venturi "tube", larger at each end than in the center. When air rushes through a venturi, air pressure at the center is lower (due to a "law of physics", Bernoulli's Theorem).
4. A nozzle between the carburetor float bowl and the venturi allows the difference in air pressure to force fuel from the float bowl up through the nozzle where it is picked up by and mixed with the air.
5. The fuel and air mixture is further mixed as it passes over the throttle disc; and as the mixture enters the crankcase through the reed valves, it is in a nearly gaseous state.
6. The float valve is a needle and seat assembly activated by a float in the float bowl. (The needle rests on the float arm and is held in place by a spring clip. The needle is rubber tipped so that it seals well against the seat.)

   When the float bowl is empty, the float is on the bottom of the bowl. As fuel enters the fuel float bowl, the float rises, moving the needle into the seat, and shutting off the fuel.

   As the engine uses fuel, the float drops and the needle moves off the seat maintaining a constant fuel level in the carburetor.

Fuel and Oil

CAUTION

Lawn Boy mowers are powered by two-cycle engines that require a mixture of gasoline and oil. Failure to use the right mixture will result in serious engine damage.

SPECIFICATIONS

OIL

Type
Lawn Boy 2-cycle

CAUTION
Do not use automotive oil.

GASOLINE

NOTE
We recommend purchase of gasoline in small quantities to minimize gum build up and to ensure that gasoline is blended for the season.

Type
Regular
Unleaded
Unleaded premium

CAUTION
Never use gasoline containing alcohol (see information below).

MIXING FUEL

WARNING

1. Gasoline is extremely flammable and explosive under certain conditions.
2. Mix fuel and refuel mowers outdoors only.
3. Always fill engine when cool.
4. Never smoke or allow any flame or source of heat or ignition near fuel.

1. Use clean, approved containers. (Lawn Boy 2-1/2 gallon containers are available.)
2. Do not mix fuel in fuel tank of mower.

MIXING SPECIFICATIONS		
2-Cycle Oil	**Gasoline**	**% Mix**
Lawn Boy Oil 8 (U.S.) oz. Can	2 (U.S.) Gal.	32:1
Other 2 Cylinder Oil 8 (U.S.) oz. Can	1 (U.S.) Gal.	16:1

3. Pour oil into container.
4. Pour about one quarter of the fuel into container and mix well.
5. Release cap slowly to relieve any pressure and pour remainder of fuel into container.

ALCOHOL IN FUEL

Damage

CAUTION
Lawn Boy cannot presently endorse the use of fuel containing alcohol. Evidence concerning damage to engines is currently being assessed.

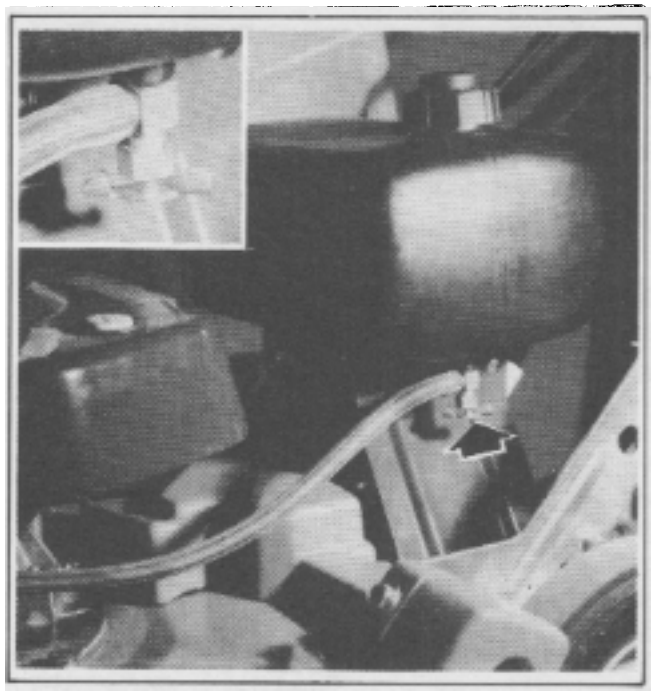
CAUTION
The following problems may occur if gasoline containing alcohol is used.

1. Deterioration of fuel system.
2. Damage to internal engine components.
3. Lubrication failure, due to separation of fuel caused by alcohol absorbing moisture.

CAUTION
Problems related to use of fuel containing alcohol are not the responsibility of Lawn Boy and may not be covered under warranty.

Fuel Source

CAUTION
The presence of alcohol in gasoline may not be advertised. If you have any doubt, do not use the gasoline.



Shut Off Valve

Checking Flow
Remove fuel hose, open valve and observe fuel flow through valve.

Replacement
1. Replace fuel shut off valve assembly if damaged.

NOTE
Be careful when reinstalling valve to tank with spring clip.

Fuel Hose

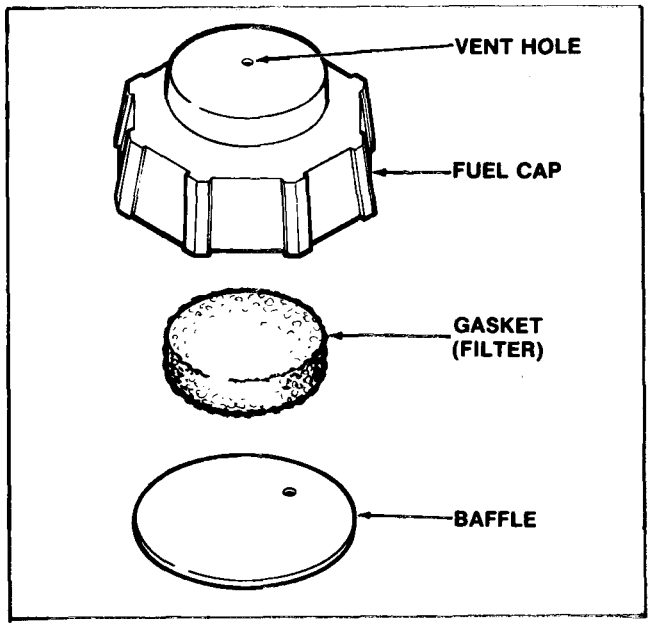
WARNING
Do not substitute inferior fuel hose: it may deteriorate prematurely, cause leakage and explosion or fire.

Primer System

Checking Operation
1. Disconnect primer hose at carburetor.
2. Cover hole in primer bulb while pressing primer bulb.
   A. If air can be felt at end of hose, system is operating.
   B. If no air can be felt at end of hose, remove assembly and replace parts as necessary.

Service
1. Disconnect primer hose at primer.
2. Remove lock nut and remove primer assembly.
3. Replace parts as necessary.
4. Reinstall primer assembly and reattach primer hose.

Fuel Tank Vent



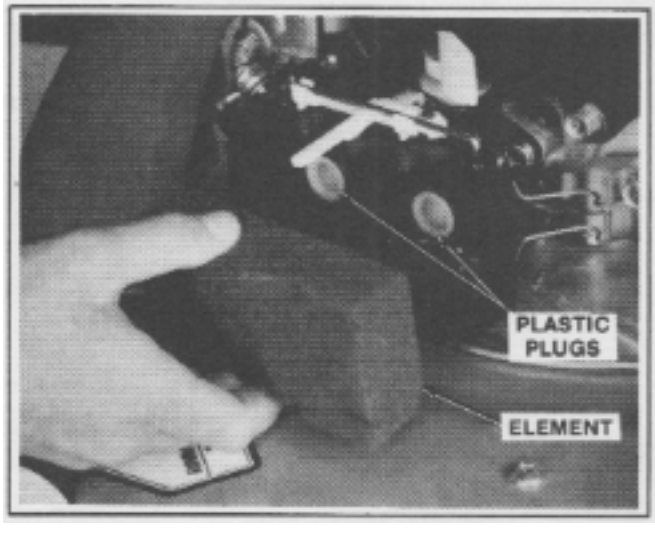
NOTE

Fuel tanks are vented through a vent hole in the tank cap to prevent vacuum forming and stopping the flow of fuel.

TROUBLESHOOTING

Symptom	Cause	Remedy
Engine stops after running a short time, can be re-started in a few minutes but symptoms will reoccur.	Blocked vent hole.	Clean vent hole. Check fuel source.

Air Filter



TROUBLESHOOTING

Symptom	Cause	Remedy
Power loss.	Dirty element.	Clean and oil element.
Engine smokes.	Dirty or fuel saturated element.	Clean and oil element.
		Instruct customer on starting procedures.

Cleaning

1. Loosen clip (bail) and remove filter element.
2. Wash filter element with kerosene or detergent in water.
3. Squeeze dry.
4. Work 10 to 15 drops of oil into element.

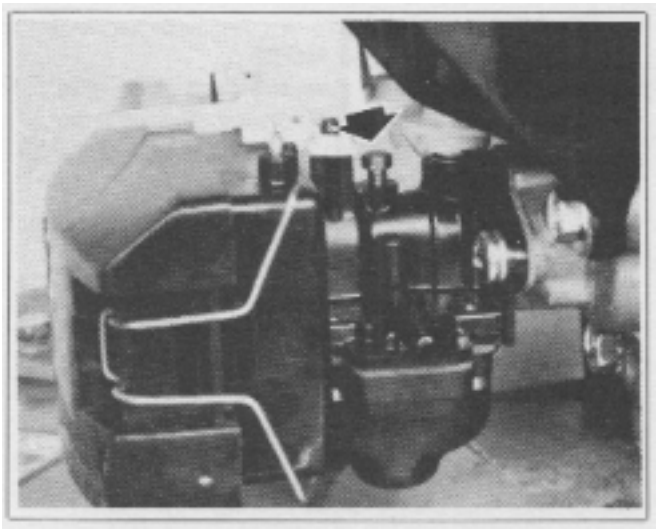
CAUTION

Do not operate engine without filter element or with a dry element: engine life will be shortened.

5. If not installed, install plastic plugs (PN 611545) in air filter box to keep dirt out.
6. Reinstall filter element so that it is even, centered in box and so that the sides are in "original" position (to prevent any imbedded particles on intake side from entering carburetor).

TROUBLESHOOTING

Problem	Possible Cause	Remedy
Engine won't run.	Spring Clip defective. (Needle stuck shut.)	Replace clip and needle.
Engine runs lean, starved.	Nozzle filter not installed. (Small dirt particles are entering carburetor.	Clean nozzle and replace filter.
	Spring Clip defective. (Needle sticking.)	Replace clip.
	Float Arm set too low.	Reset float arm.
Engine runs rich.	Needle and Seat mismatched. (Fuel supply won't shut off.)	Replace assembly.
	Float Arm set too high.	Reset float arm.
Engine runs erratically.	Float sticks. (Pivot pin bent, corroded, or tight in body.)	Replace pin or loosen pin to hinge joint.
	Governor sticking.	Check governor. Repair or replace.
	Float is striking nozzle.	Replace float.
	Float is soaked with fuel.	Replace float.
	Carburetor adjusted lean.	Adjust carburetor.
Engine stalls, hard restarting.	Nozzle Filter not installed. (Small dirt particles are entering carburetor.)	Clean bowl and nozzle. Install clean, nozzle filter.



NOTE

Always adjust governor before adjusting carburetor so that engine speed is in correct R.P.M. range.

NOTE

Any new or rebuilt carburetor requires final adjustment before putting mower into service.

1. Start and run engine for 3 to 5 minutes to warm it up to normal operating temperature.
2. With engine running in "normal" (at about 3300 RPM) turn needle valve slowly clockwise approximately 1/6th of a turn at a time using Lawn Boy wrench (PN612231) or 1/4" open end wrench, until engine runs smoothly.

NOTE

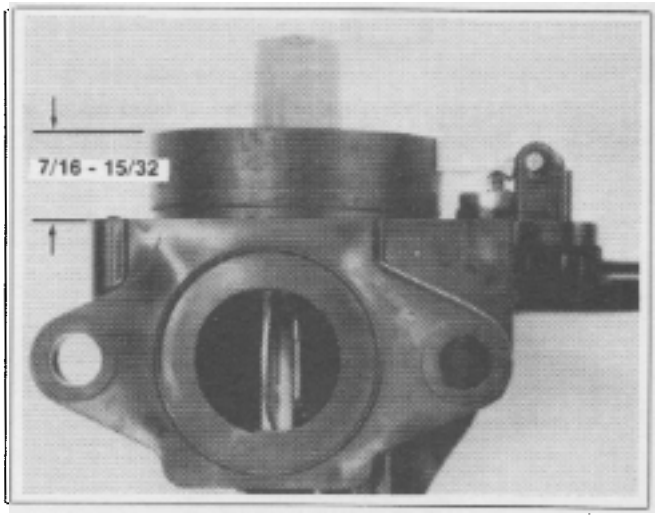
The following step ensures easy starting and smooth running when cold.

3. Turn needle valve counter-clockwise approximately 1/6th turn.
4. Shut off engine, restart immediately, without priming: engine should start within 2 pulls. If it does not, turn needle 1/6th turn counter-clockwise to richen mixture slightly.

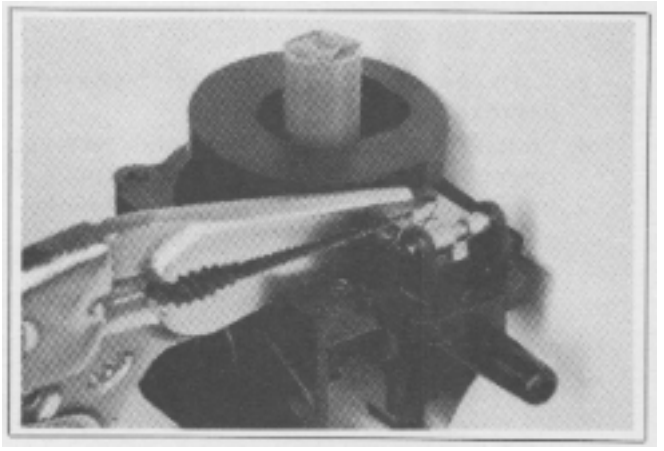
NOTE

Engine should 4 cycle a little under no load; and 2 cycle when under full load cutting grass.

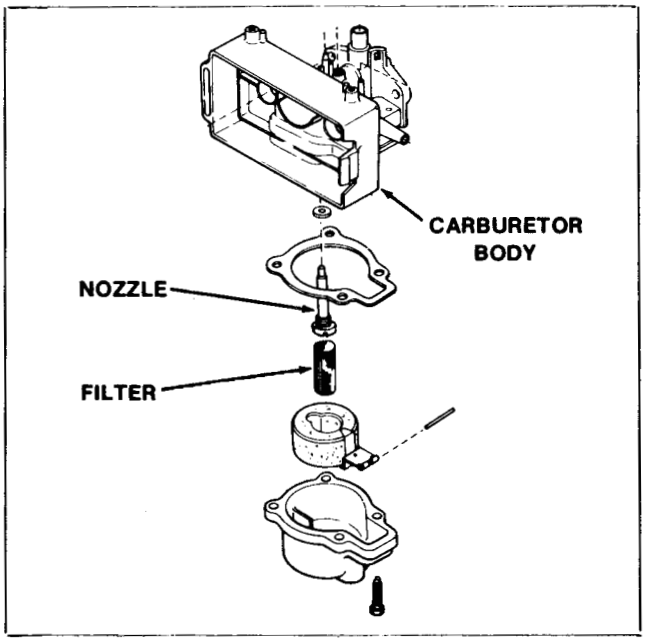
5. Recheck governor adjustment.



Measuring Float Height



Adjusting Float Height



Service

NOTE

For information on how the float and valve system works and on diagnosis of problems (see Theory of Operation and Troubleshooting in this section).

Disassembly and Replacement

1. Remove carburetor from engine.
2. Remove float bowl.
3. Replace needle, seat and spring clip as an assembly if any part is worn or damaged.
4. Remove adjustment needle and nozzle.
5. Remove float and check condition: replace if saturated with fuel, damaged or if glossy epoxy sealer is dull.

NOTE

Cleaning float with solvent will not restore it to operating condition.

6. Check pin clip on float arm by turning carburetor: replace clip if it falls off.

Adjustment and Reassembly

1. Check that top of float is 7/16-15/32 inch above edge of carburetor body, taking two measurements 90° apart.

CAUTION

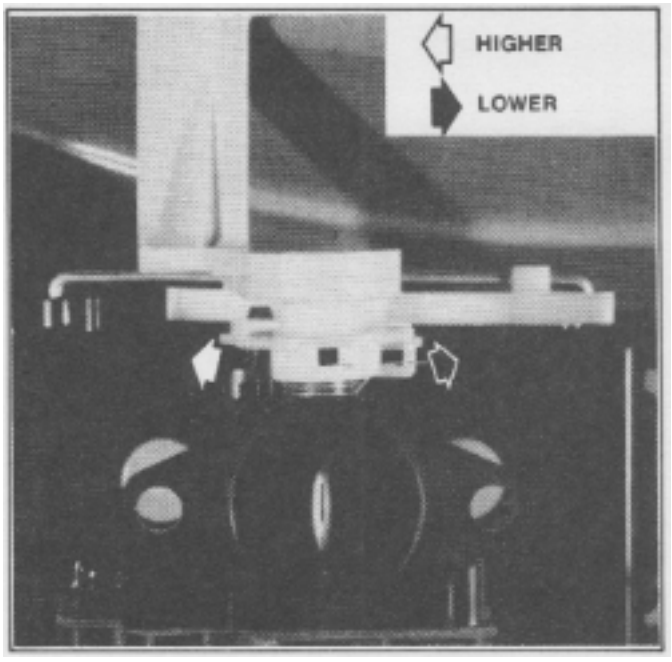
In next step, do not put pressure on float itself or you may damage tip of inlet needle.

2. Adjust, if necessary, by carefully bending float arm.
3. Install nozzle and torque to 18-20 in. lbs. (2 ft. lbs.).
4. Install a clean nozzle filter.

CAUTION

Do not force needle against seat as it can be damaged.

5. Turn needle valve in slowly, clockwise, using Lawn Boy wrench (PN612231) or 1/4" open end wrench, until it seats lightly.
6. Turn needle valve counter-clockwise 1-1/2 turns.



THEORY OF OPERATION

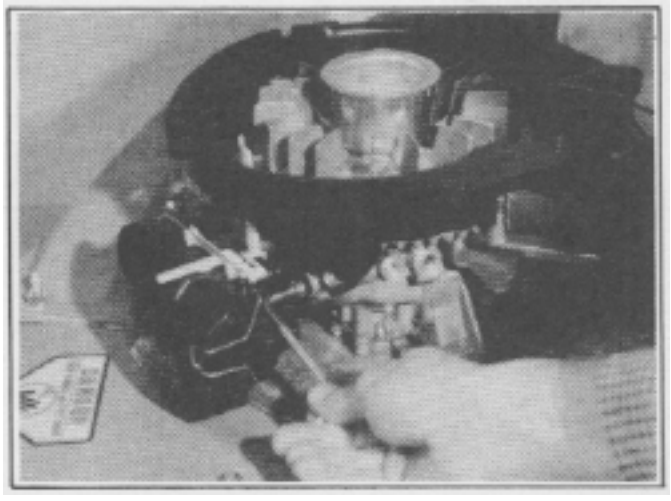
The shaft of the governor air vane is attached to the throttle disc of the carburetor so that air flow, created by the flywheel turning, moves the air vane and opens or closes the throttle.

ADJUSTMENTS

NOTE

Each "click" on the collar represents approximately 50-75 R.P.M.

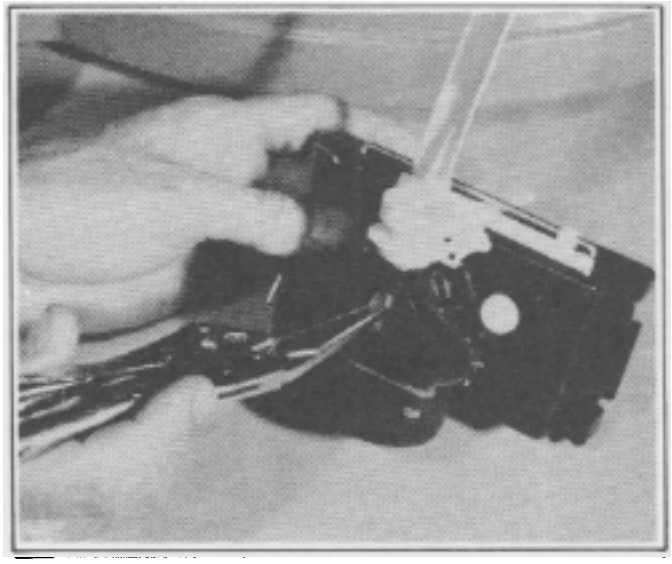
1. Turn collar clockwise to increase spring tension and R.P.M. or turn counter-clockwise to decrease spring tension and R.P.M.
2. Use a tachometer to check that engine R.P.M. is 3100 to 3300 in the normal setting.



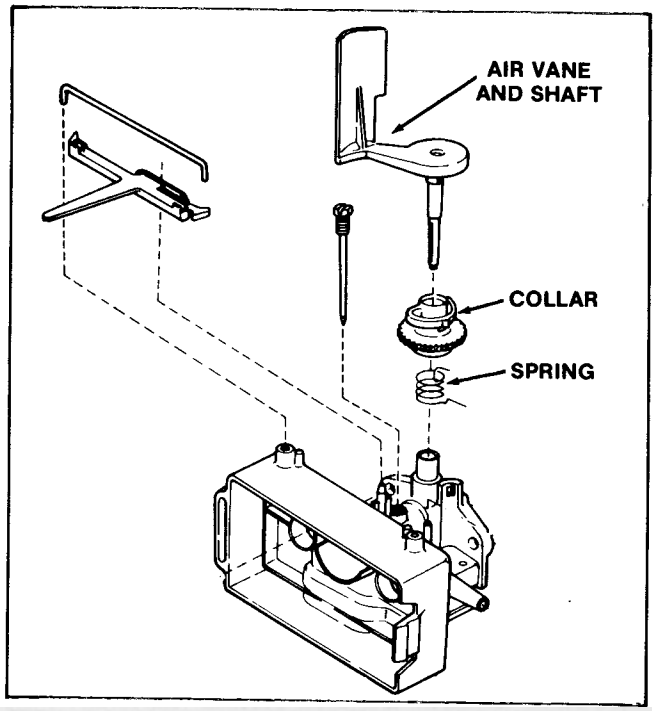
SERVICE

Removal

1. Remove carburetor and governor assembly.

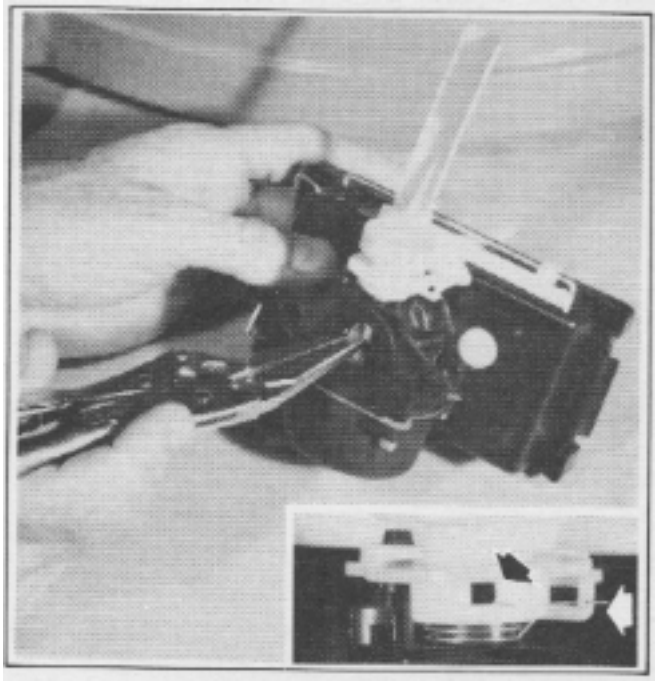


2. Disconnect air vane shaft from throttle disc carefully, using needle nose pliers.



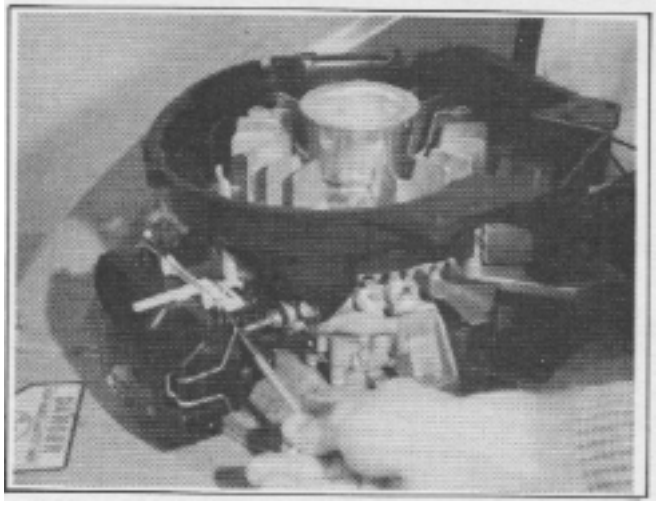
Inspection and Repair

1. Inspect all parts for wear and replace as necessary.



Installation

1. Assemble air vane shaft to throttle disc so that ends of spring are in holes of collar as shown.



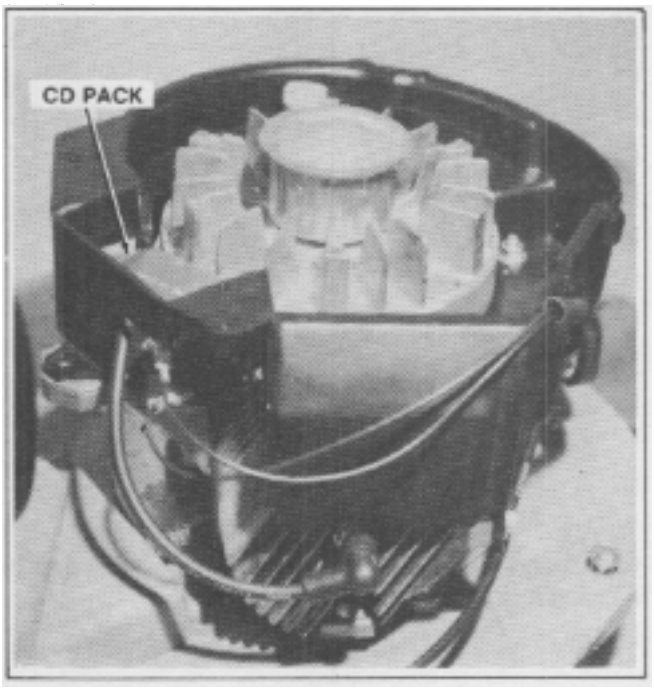
2. Install carburetor and governor assembly.
3. Adjust governor as outlined on previous page.
4. Check that carburetor is adjusted correctly (see Carburetor in this section).

4. ELECTRICAL SYSTEM

Ignition System

THEORY OF OPERATION

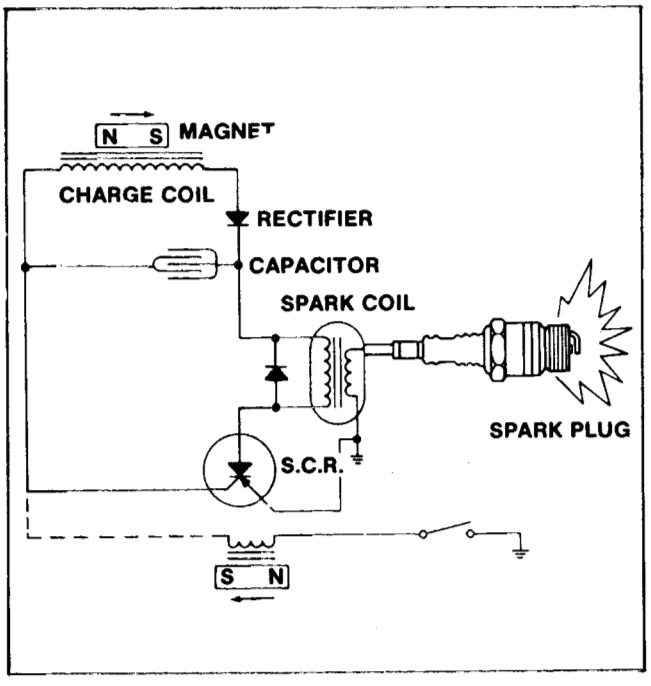
The ignition system consists of a solid state electronic, CD Pack; flywheel with a built in permanent magnet; and a spark plug.

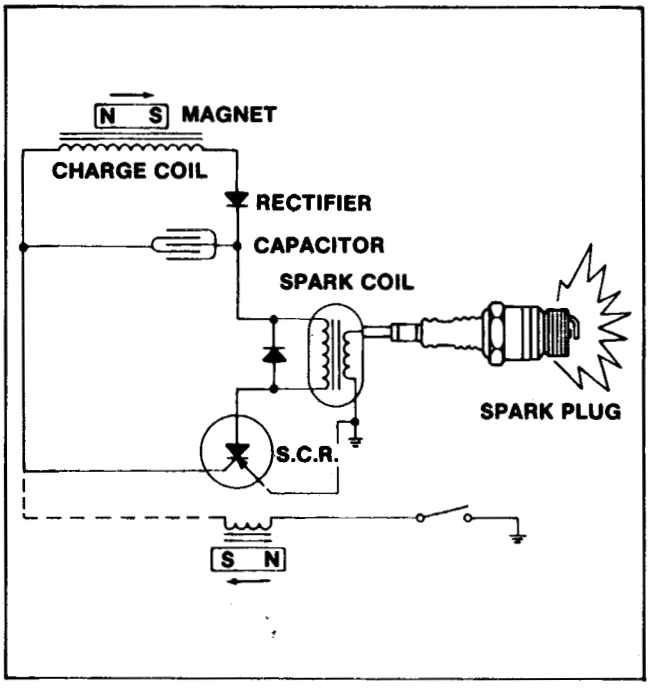


NOTE

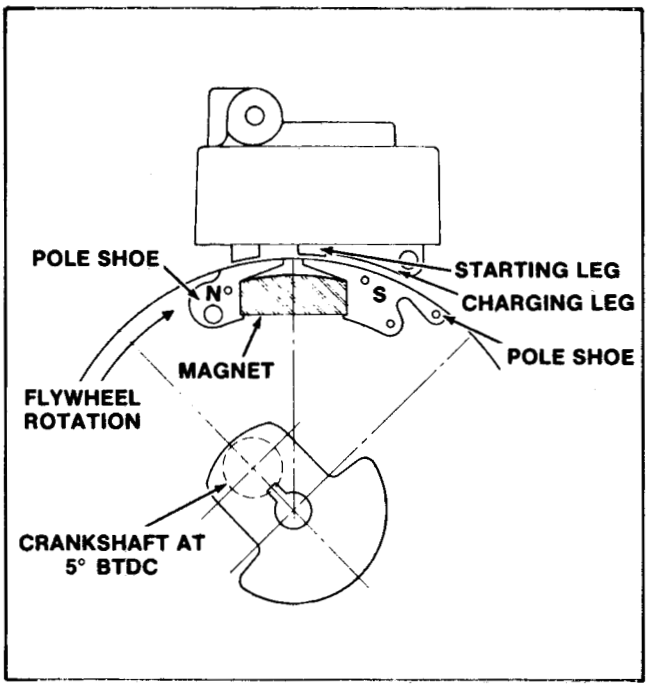
CD Pack replaces the breaker points, breaker cam and spark advance assembly of a conventional electro-mechanical system.

As the flywheel magnet passes the CD pack, AC voltage is induced into the charge coil.

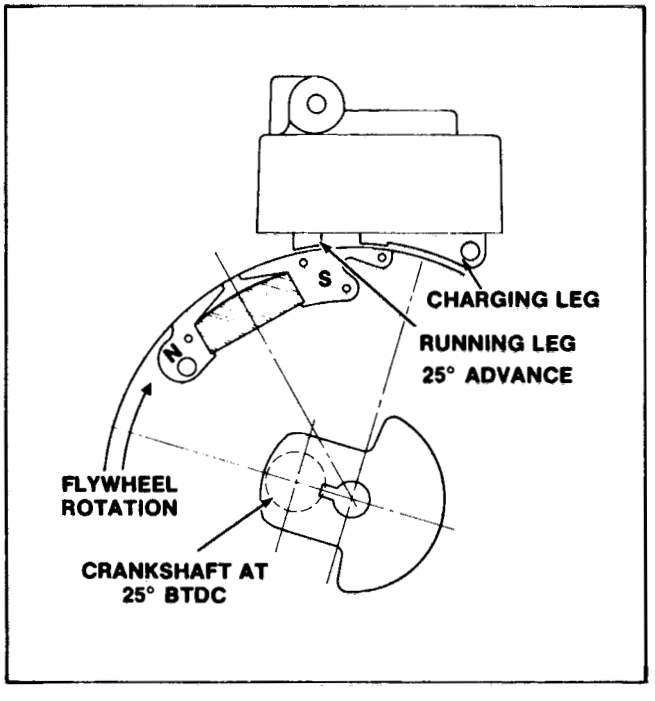




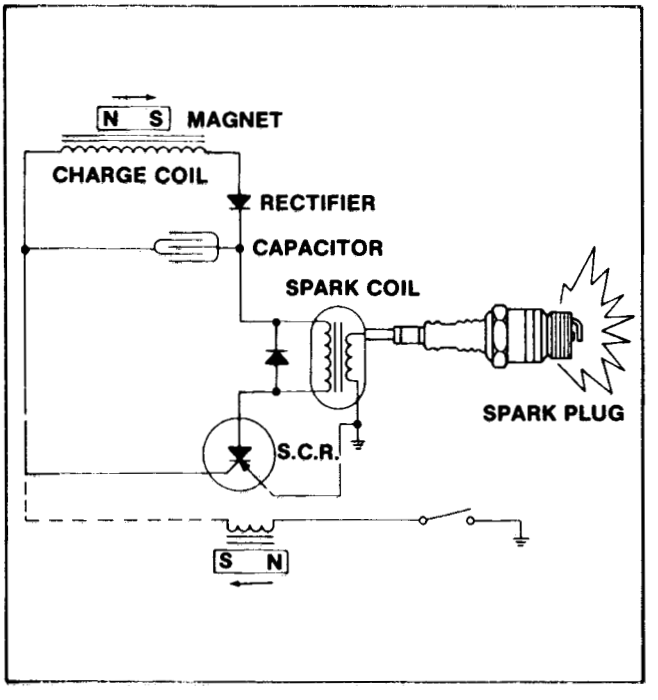
The AC voltage passes through a rectifier that transforms it into DC voltage which is then stored in a capacitor.



At lower speeds, the flywheel magnet induces a small charge in the trigger coil which triggers the Silicon Controlled Rectifier (SCR) allowing easy starting in a "retarded firing position," approximately 5° Before Top Dead Center (BTDC).



At higher speeds, about 800 RPM, the flywheel magnets induce a large enough charge in the trigger coil to "trigger" the SCR rectifier in the "advanced firing position" of approximately 25° BTDC.



When the SCR is triggered or "opens", up to 300 volts stored in the capacitor travels to the spark coil where it is stepped up to as much as 30,000 volts and is discharged across the electrodes of the spark plug.

TROUBLESHOOTING

NOTE

Check ignition system in the following order: spark plug (connection, condition), CD Pack (air gap, connections or spark), circuit switch (lead connection or switch condition), flywheel (key and magnets).

General

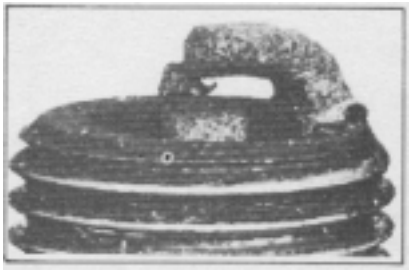
Problem	Possible Cause	Remedy
Misfiring, no fire, engine surges, dies.*	Spark plug or lead loose.	Tighten to specifications.
	Spark plug in poor condition.	(See Spark Plug Analysis in this sub section.)
	CD Pack air gap wrong.	Adjust (see CD Pack in this section).
	CD Pack high tension lead loose.	Secure with OMC adhesive "M" (PN 318535) or G.E. silicon sealant.
	CD Pack leads loose or dirty.	Clean and tighten leads.
	CD Pack defective.	Replace.
	Circuit switch lead loose or switch defective.	Tighten lead or replace switch.
	Flywheel key damaged or sheared.	Replace key and check keyway (see Flywheel, in this section).

*Note: These symptoms may also be caused by fuel system problems.

Spark Plug

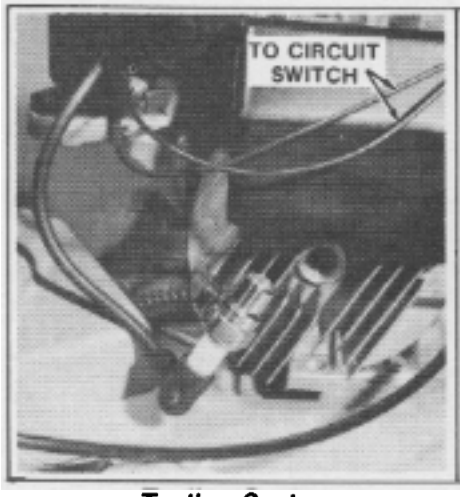
	Condition	Analysis
 **Normal.**	Light brown or tan; few deposits; no burning.	Plug is O.K.
 **Oxide Fouling.**	Ash like deposits, no wear.	Deposits in combustion chamber, clogged exhaust ports or muffler, wrong oil in fuel.
 **Wet, Fouling.**	Black, oily film and carbon layer, not worn.	Carburetor set too rich, weak ignition, air filter clogged, too much oil in fuel, wrong plug (too cold).

(Continued on next page)

	Condition	Analysis
 **Over Heated.**	Ligh grey or white, burned.	Carbon in exhuast ports and/ or muffler, dirty cylinder fins, carburetor set too lean, blade dull, engine overload from heavy cutting, wrong plug (too hot).
 **Worn Out.**	Color OK, worn electrodes.	Plug old, needs replacement.
 **Gap Bridging.**	Particles fused between electrodes and nose.	Excess carbon in cylinder from wrong oil or fuel, wrong oil/gasoline mixture, clogged exhaust ports.

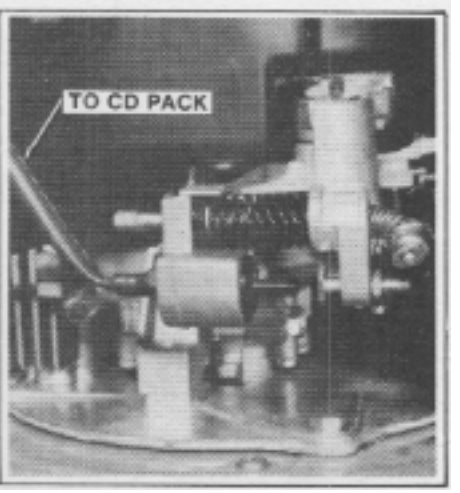
TESTING

Part(s) Tested	Test Hook-Up	Results (Pull starter rope with bail against handle)	Analysis	Action
1. System.	Lawn Boy test spark plug (PN 426814) to high tension lead and ground (cylinder) fin furthest from plug).	Good spark.	System OK.	
		No spark.	Test further.	Test 2.
2. CD Pack.	Remove shroud and disconnect leads to CD Pack.	Good spark.	CD Pack OK. Test further.	(See checks below.)
		No spark.	CD Pack defective.	Replace.



Testing System

Testing CD Pack



Circuit Switch

CHECKS

Part	Checks	Action/Reference
1. Circuit Switch.	Check adjustment of brake cable and circuit switch and continuity of circuit switch.	(See Flywheel Brake System in this section.)
	Check switch leads for moisture or corrosion.	Clean and dry leads.
2. CD Pack.	Check high tension lead tightness and condition.	If loose, secure with OMC adhesive "M" (PN318535) or GE silicon sealant. If condition is poor, replace.

Spark Plug

1. Check spark plug with Analysis Chart in this section and replace, following specifications below.

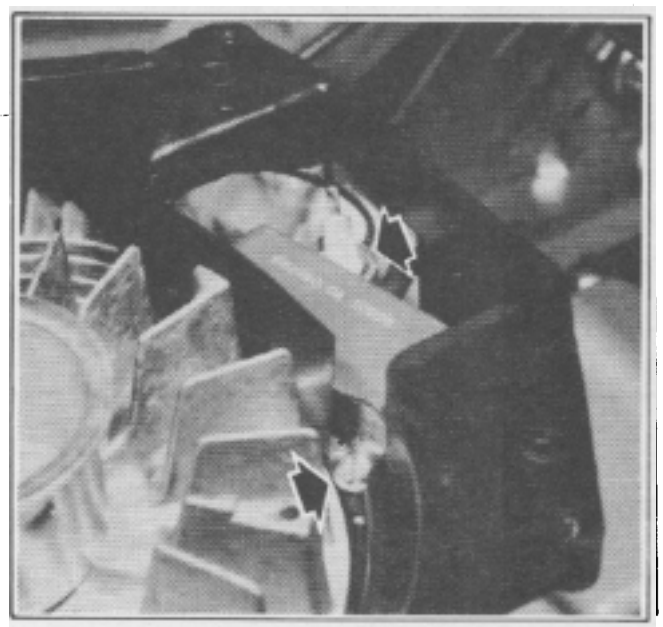
CAUTION
Do not clean plug with sand blaster.

2. Clean with a wire brush, removing the carbon buildup. Check condition of the plug for cracking or damage. Replace as necessary.

SPARK PLUG SPECIFICATONS

Type.	Champion CJ-14.
Change Time.	As needed (see Troubleshooting/ Testing in this section).
Check, Clean and Gap.	Every 25 hours and .035" all new plugs.
Torque.	144-180 in. lbs. (12-15 ft. lbs.).

CD Pack



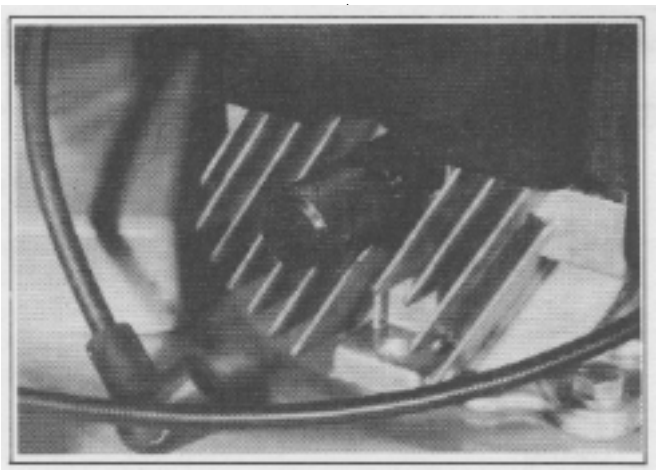
Checking and Adjusting Air Gap

1. Check that air gap is .010 with Lawn Boy Gauge (PN 604659).
2. Adjust gap by loosening screws, inserting Lawn Boy gauge (PN 604659) and tightening screws.

Replacement

1. Disconnect switch lead and remove mounting screws.
2. Replace CD Pack and set gap as outlined in Step 2 above.

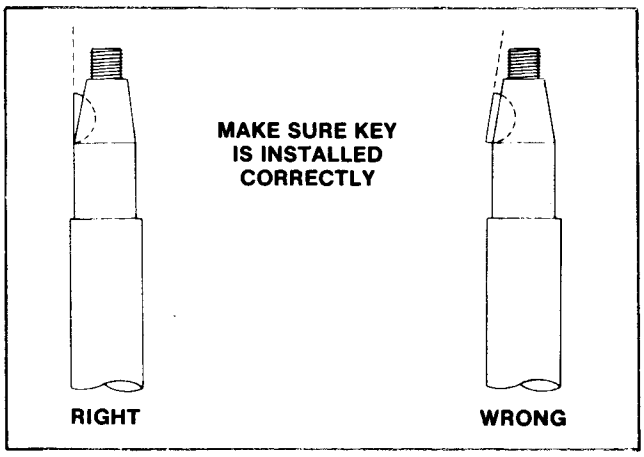
Flywheel



Inspection or Replacement

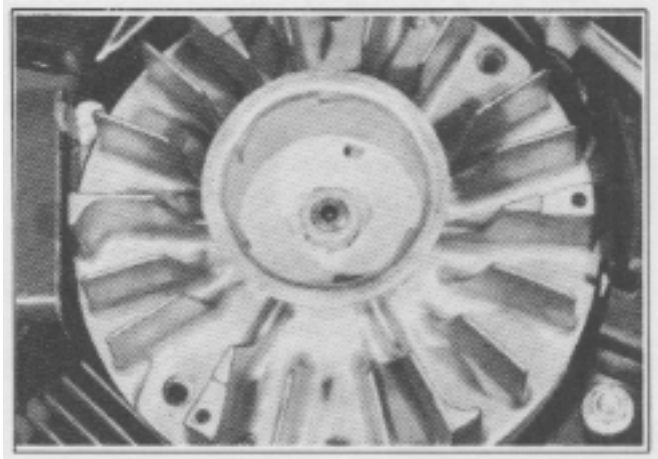
1. Remove spark plug and install piston stop (PN 677389).
2. Remove shroud, fuel hoses and air baffle.
3. Remove flywheel nut, and flywheel screen.

4. Remove flywheel by pulling up on edge of flywheel while striking wide fin of flywheel with a soft hammer.
5. Remove key and check condition.
6. Replace crankshaft if keyway is distorted or cracked.
7. Check flywheel for wear and flywheel magnets for strength.



Installation Notes.

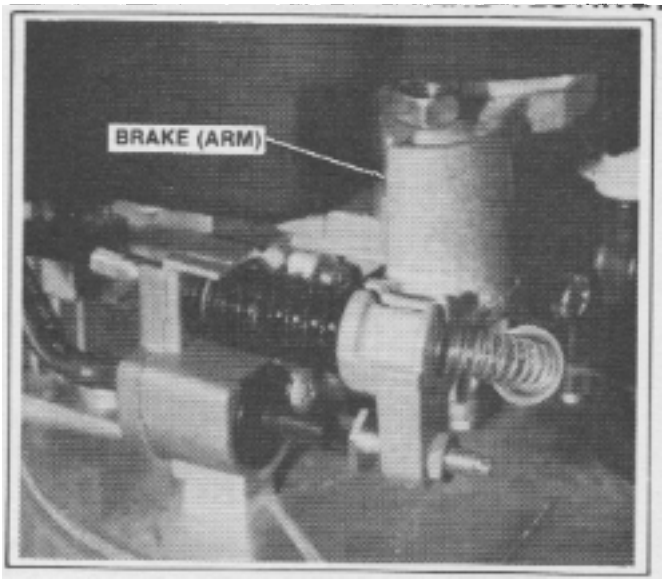
1. Make sure flywheel keyway is absolutely clean.
2. Make sure key is installed correctly (see illustration).



3. Torque flywheel nut to 375-400 in. lbs. (31-33 ft. lbs.).

Flywheel Brake System

THEORY OF OPERATION AND TESTING



Theory of Operation

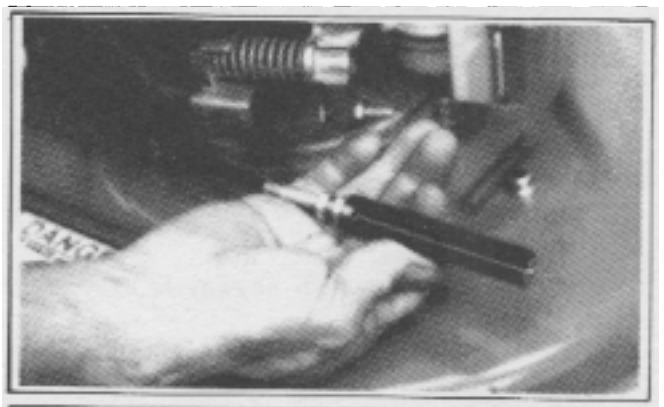
The flywheel brake is connected by cable to the control lever (bail). Releasing the bail moves the brake against the flywheel and stops it from turning; and also opens the circuit switch, shutting down the ignition system. Closing the bail moves the brake away from the flywheel and closes the plunger against the switch, opening the ignition circuit and allowing the engine to run.

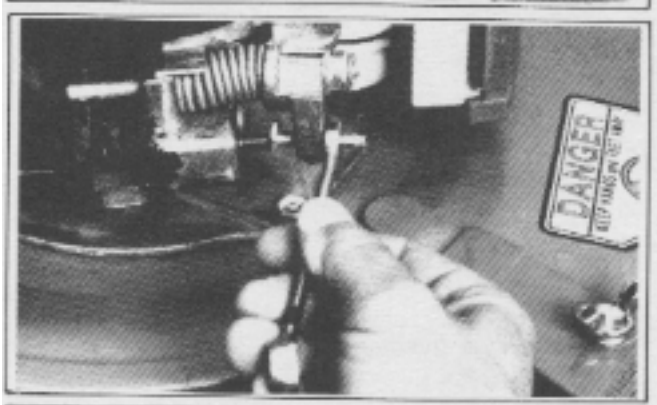
Testing

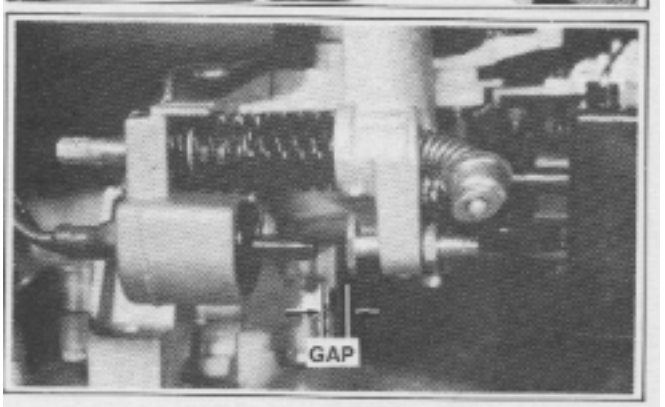
Use mower monitor (PN E7301) to check that engine and blade stop within 3 seconds. If they do not, see Adjustments below.

(Test circuit switch at leads to CD Pack: There should be continuity with plunger pushed in and no continuity with plunger released.)

ADJUSTMENTS







Brake Cable

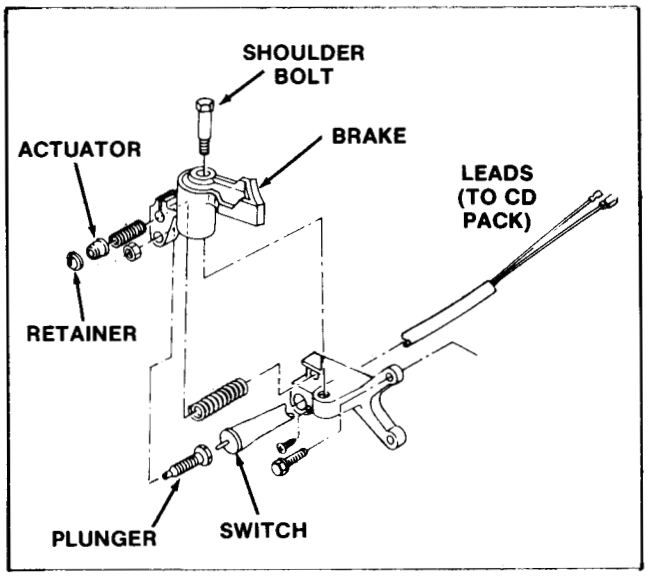
1. Back off jam nut, install gauge (PN 611703) and retaining clip on cable.
2. Turn adjusting nut against gauge to about 5 lbs. tension.
3. Tighten jam nut against adjusting nut without allowing jam nut to move.

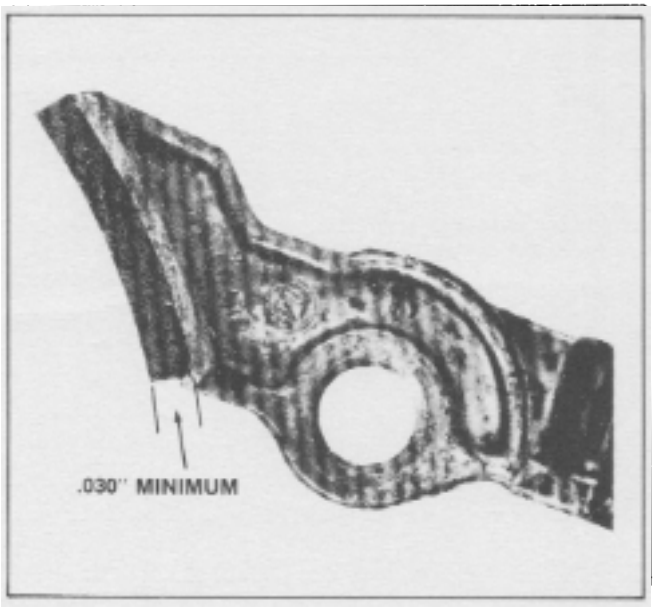
Circuit Switch

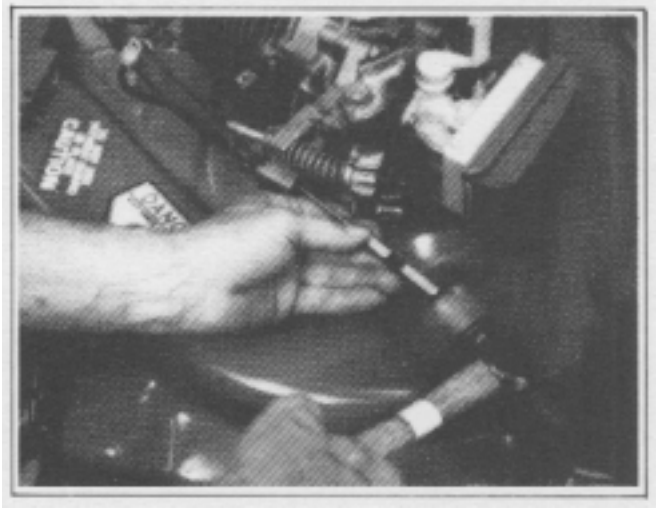
WARNING

Circuit Switch must be adjusted correctly to ensure that the ignition is shut off at the correct time to ensure proper blade stop time.

1. Loosen jam nut on plunger adjusting bolt and back bolt out all the way.
2. Close bail against handle.
   A. If bolt is **not** touching plunger, turn bolt in until it touches plunger.
   B. Turn bolt in 6 — 6-1/2 turns.
   C. Tighten jam nut.
3. Release bail and check that there is a gap between bolt and plunger.
   A. On switches without heat shrink tubing on leads, gap must be .020" or more.
   B. On switches with heat shrink tubing on leads, gap must be 1/8" or more.







Flywheel Brake Arm

Inspection

1. Remove shroud and tank assembly and flywheel (see Flywheel in this section).
2. Replace flywheel brake arm if pad is worn to less than .030" at any point.

Replacement

3. Place flywheel back on engine and release bail ("Stop" position).
4. Compress cable retaining spring by hand; use pliers to remove clip (which is crimped) and remove cup and spring.
5. Remove cable, flywheel brake spring, brake switch adjusting bolt and nut, brake arm bolt and brake arm.
6. Install brake switch adjusting bolt and lock nut to new brake arm so that head is against bracket.
7. Thoroughly clean brake arm bolt threads and apply Lawn Boy Screw Lock (PN 384848).
8. Assemble brake arm and bolt to bracket and torque to 63-75 in. lbs. (5-7 ft. lbs.).
9. Assemble brake spring, cable spring, and cable retainer.

Adjustments

WARNING

Always adjust brake cable and brake switch when replacing components of flywheel brake system to ensure blade stops, as required.

1. (See Adjustments in this section.)

Circuit Switch

Replacement (Switch - with heat shrink tubing)

1. Remove flywheel.
2. Remove switch retainer screw.
3. Drive switch body out of bracket using drift punch and hammer.
4. Install new switch, secure with retaining screw and connect two leads to CD pack.
5. Adjust switch (see Adjustments in this section).

Replacement (Switch - without heat shrink tubing)

1. Remove flywheel.
2. Screw adjusting screw in completely.
3. Remove retainer screw.
4. Use channel lock pliers or other suitable tool to rotate brake assembly so that switch can be removed and replace switch.
5. Adjust switch (see Adjustments in this section).

5. STARTING SYSTEM (MANUAL STARTER)

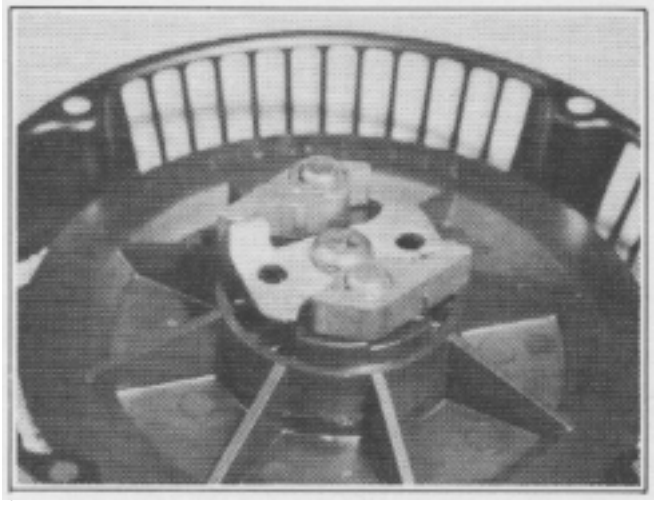
SERVICE

Removal and Disassembly

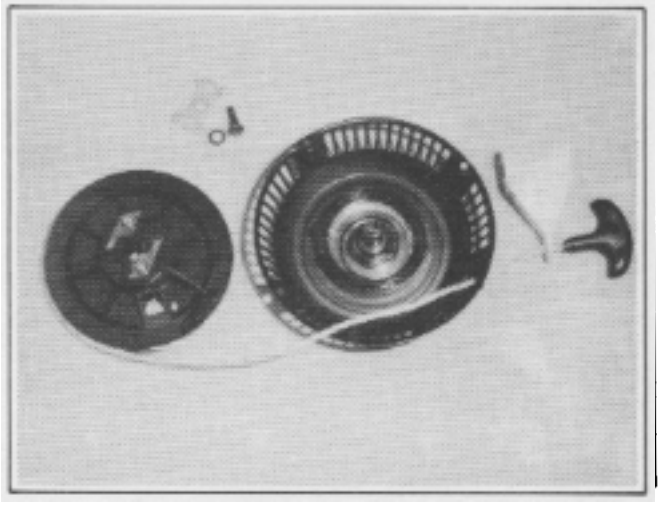
1. Remove handle and release rope tension.
2. Remove four screws holding starter to engine and remove starter.

WARNING

In next two steps, the spring could fly out and cause injury.

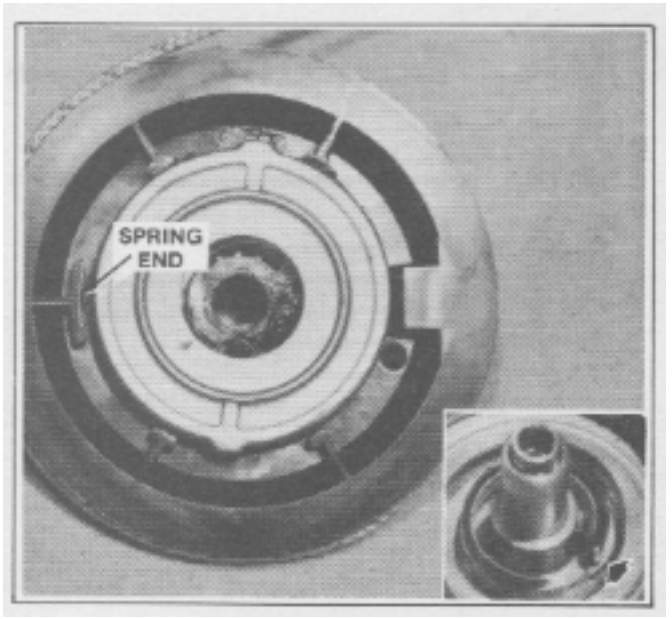


3. Remove center screw and dog cam and carefully lift rope and pulley assembly from housing.
4. Separate spring and keeper assembly if stuck to bottom of pulley.



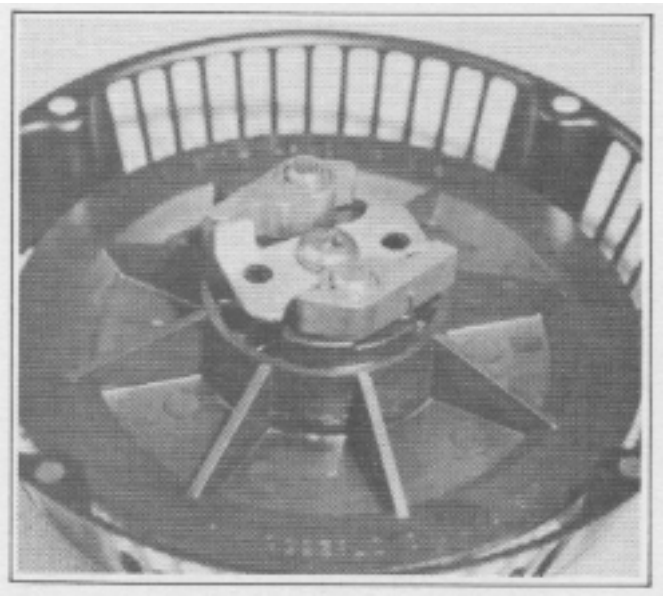
Inspection and Repair

1. Inspect rope and pulley assembly: Replace rope if frayed and replace pulley if worn or damaged.
2. Inspect spring and keeper assembly and replace if damaged.

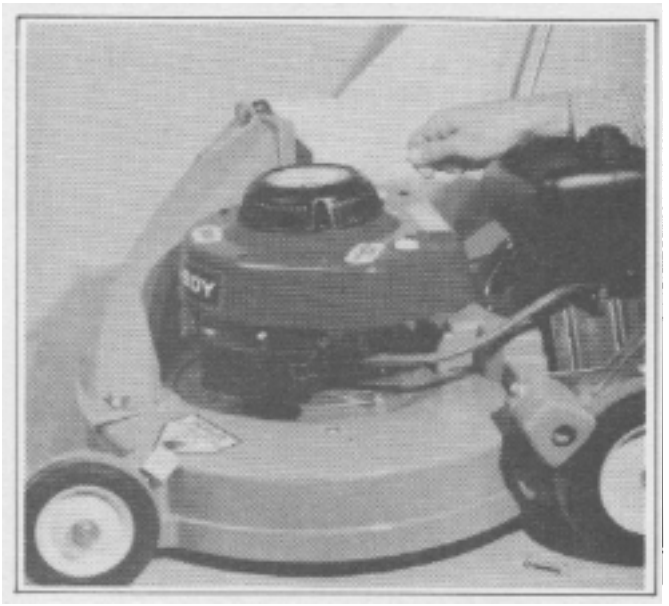


Reassembly

1. Hold the pulley with the spring facing up and wind the rope clockwise.
2. Position spring and keeper assembly on the pulley so that the end of the spring is pushed against the long stiffening plate.
3. Install pulley and spring assembly in the housing so that spring engages the housing and approximately 12" of rope extends from housing.



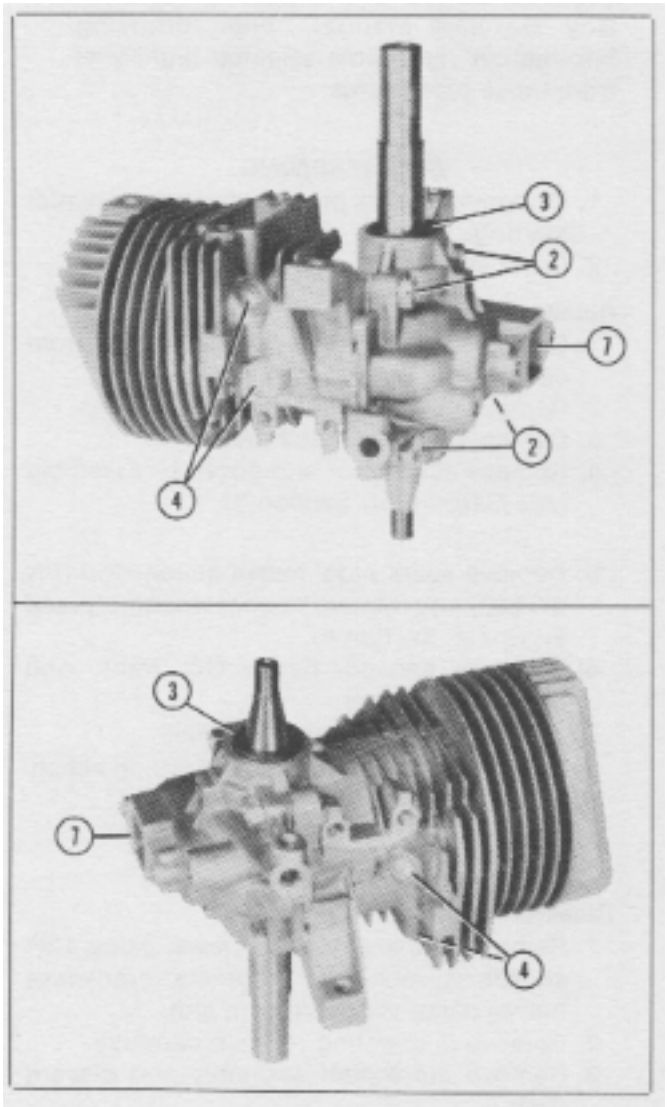
4. Install spring, dog cam and center screw. Torque screw to 65-75 in. lbs. (5-6 ft. lbs.).



Installation

1. Place starter on engine and install the four screws finger tight.
2. Pull starter rope to engage dogs and center the starter assembly.
3. Torque screws to 20-25 in. lbs. (2 ft. lbs.).

6. ENGINE (POWERHEAD)



TROUBLESHOOTING

NOTE

Loss of power due to poor sealing (air or oil leaks) may be caused by wear or defects in one or more of the components listed below (Numbers 1-6); loss of power may also be caused by item 7.

1. **Crankcase Halves.** Check cleaning and assembly procedures under Teardown in this section.
2. **Crankcase Cover.** Check torque.
3. **Main Seals.** Check for worn seals.
4. **Intake Plugs.** Use special tool (PN 609904) to install plugs.
5. **Gear Housing Gasket (Model 8430).** Check for defective gasket.
6. **Power Take Off Seal (Model 8430).** Check for wear or damage.
7. **Exhaust Ports and Muffler Baffle.**
   A. These parts should be cleaned approximately every 50 hours to keep carbon from clogging exhaust system (causing power loss) and from entering engine (causing piston scoring).

NOTE:

To clean exhaust system (see Maintenance in this section).

SERVICE

Maintenance

Cleaning Exhaust System

WARNING

Disconnect spark plug to prevent accidental starting.

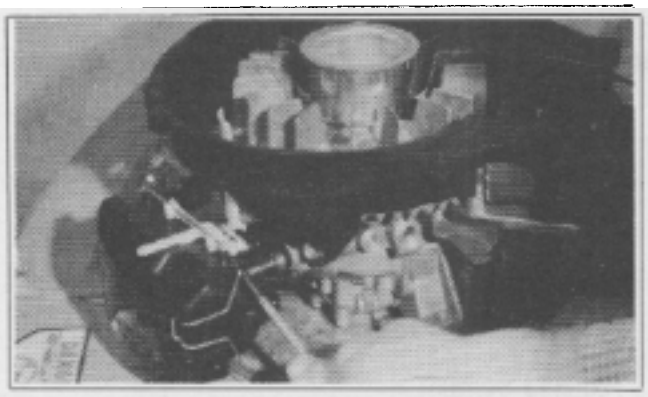
1. Remove blade assembly (using soft hammer to remove hub), crankshaft support and muffler.
2. Clean openings in muffler baffle and muffler tube with a wooden dowel.
3. Clean exhaust ports by pulling starter handle until piston covers exhaust ports and then cleaning ports with 3/8" wooden dowel.
4. Blow out carbon deposits by pulling starter rope with mower in "Run" position.

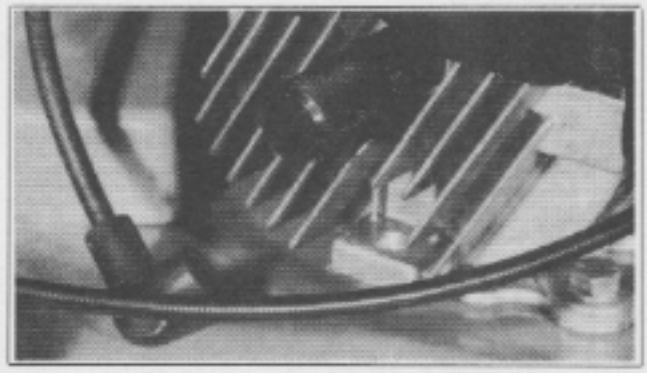
Reassembly Notes

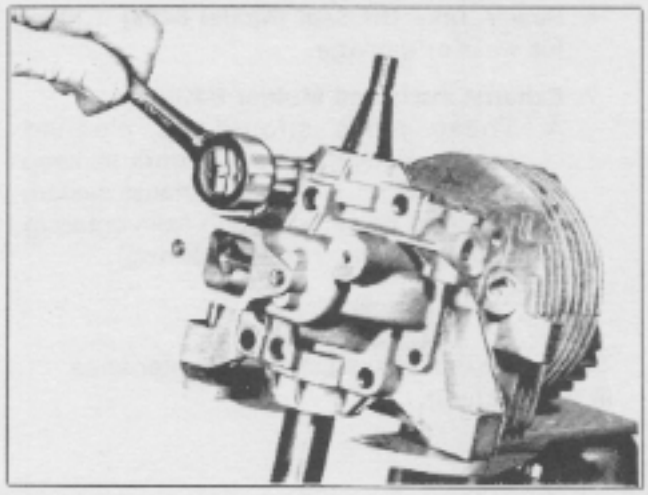
1. Crankshaft Support: align with crankshaft support gauge (PN 609908).

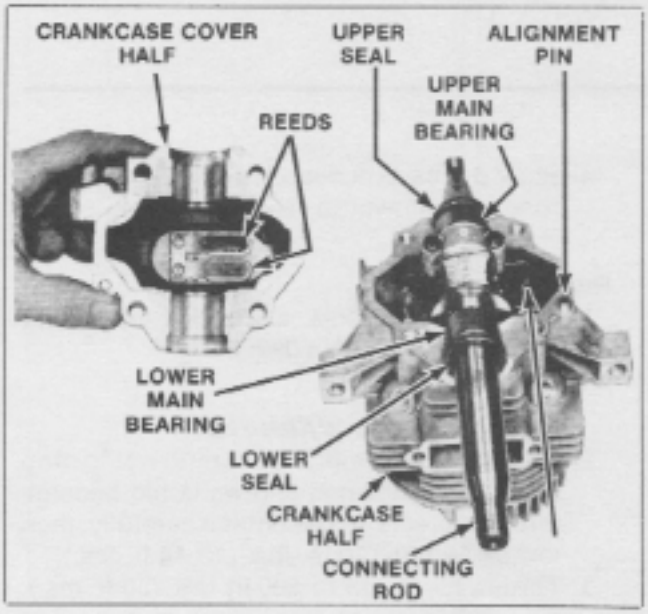
WARNING

2. On muffler assembly, be careful not to strip threads - weakened screws could become thrown objects: finger tighten carefully, then torque to 140-170 in. lbs. (12-14 ft. lbs.).
3. Torque blade nut to 600 in. lbs. (50 ft. lbs.).









Engine Teardown

NOTE

Teardown is covered in detail in the Lawn Boy Service Manual. The following information represents selected highlights from those procedures.

WARNING

1. Disconnect spark plug to prevent accidental starting.
2. Drain all fuel into suitable container.

Removal

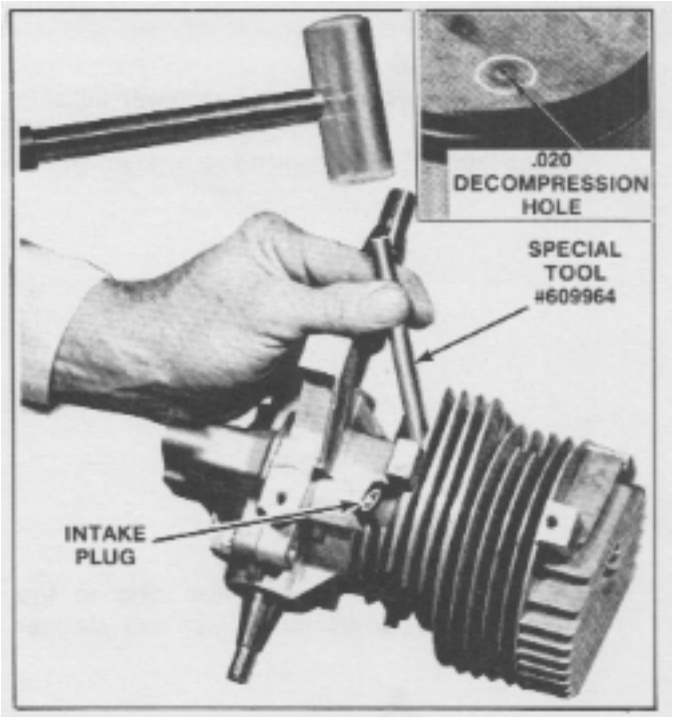
1. Disconnect fuel and primer lines from carburetor.
2. Remove shroud and starter assemblies.
3. Detach starter handle bracket.
4. Remove carburetor and governor assembly (see Carburetor, Section 3).
5. Remove spark plug, install piston stop (PN 677389) and remove flywheel assembly (see Flywheel, Section 4).
6. Remove shroud base, CD Pack and mounting bracket.
7. Detach flywheel brake assembly.
8. Lift engine from mower and move on bench.
9. Remove muffler plate.

Disassembly

1. Remove crankcase cap screws, using 1/2" socket wrench and separate crankcase halves using screwdriver in slot.
2. Remove connecting rod cap carefully.
3. Remove crankshaft assembly and discard seals.
4. Remove piston and connecting rod assembly; separate assembly if necessary using compression pliers (PN 303857) on retaining ring and special tool (PN 602884) on wrist pin.

Inspection and Repair

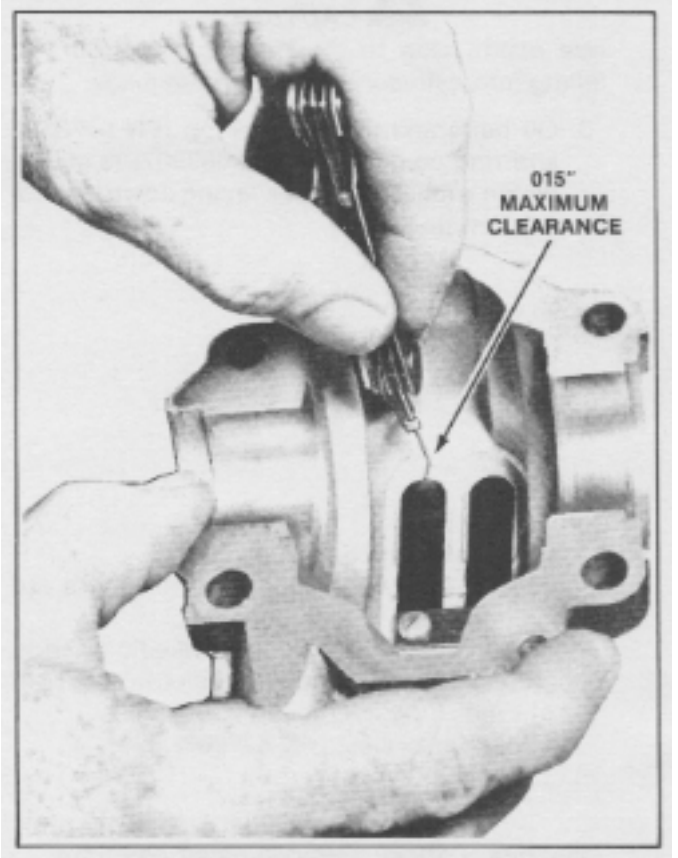
1. Check bearings for wear and free movement, replace if questionable.
2. Check rings for sticking, remove and check rings for wear or damage; replace rings. questionable.
3. Check all parts for wear or damage and replace if questionable.
4. Clean crankcase surfaces with OMC Gel Seal and Gasket Remover (PN 390928).



5. Replace intake plugs if leaking, using Screw Lock (PN 682301) on outside surface and Special Tool (PN 609904) for installation.
6. If non Lawn Boy oil has been used and carbon has clogged the decompression hole in the piston, clean with a tool no larger than .020".

⚠ CAUTION

A larger hole will reduce compression and engine efficiency.



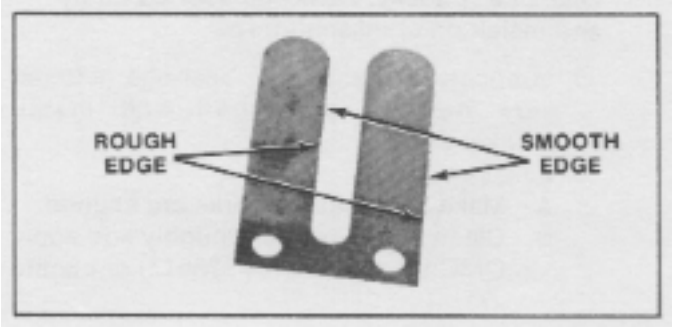
REED VALVE

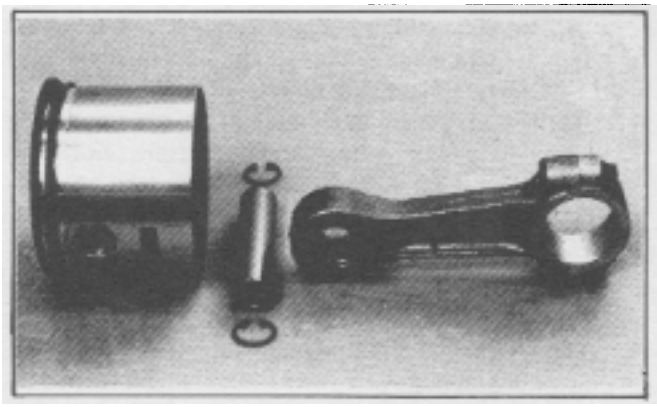
7. Check clearance between tip of reed and plate.
   A. Replace reeds if clearance is more than .015.

⚠ CAUTION

Do not use compressed air to clean reeds.

8. Clean reeds carefully, by hand, using carburetor solvent.
9. When replacing reeds, install smooth edge down and use Loctite (OMC PN 384848) on threads of screws.





Reassembly

ENGINE BLOCK

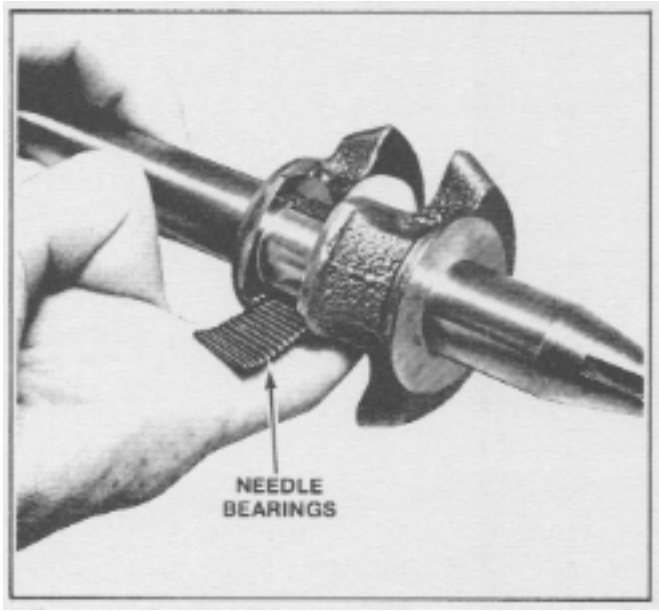
1. Install connecting rod to piston wi
   of retaining ring facing out and op
   ring facing "up" (toward top of pist

2. Install pressure back piston ring in top groove with bevel facing up; and stagger ring gaps.

CAUTION

Use piston stop to prevent top ring from falling into cylinder and causing damage.

3. Oil parts and use piston stop (PN 677389) and ring compressor (PN 609967) to install piston with "BTM" mark facing down toward exhaust ports.

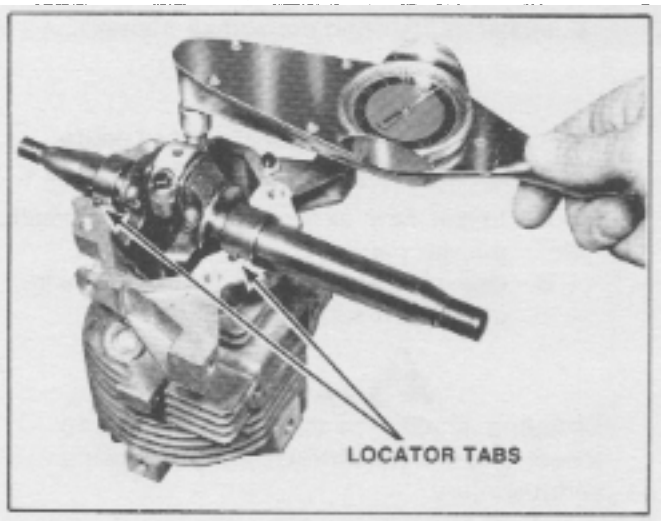


4. Assemble rod cap.
   A. Make sure dovetail ends of liners are matched.
   B. **Old needles:** use OMC needle bearing grease and place 17 needles in cap, 16 in rod.
      New needles: (PN 677963).

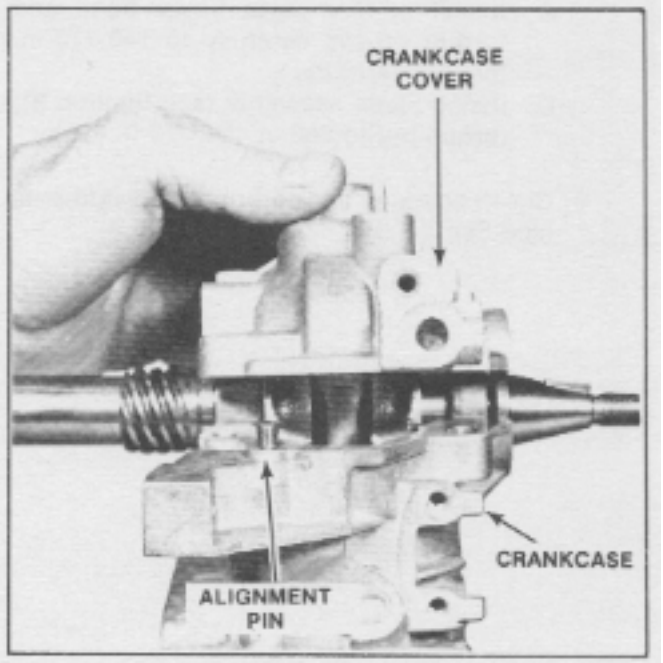
NOTE

One side is sticky. Remove paper carefully and install on crankshaft throw.

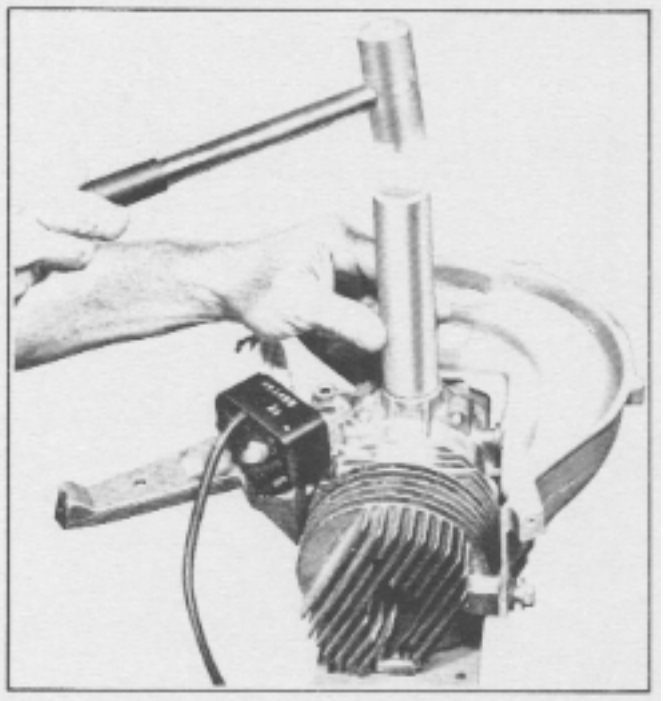
5. Lubricate and assemble bearings (lettered side out) to crankshaft and install crankshaft.
6. Install rod cap.
   A. Make sure mating marks are aligned.
   B. Clean old screws thoroughly and apply OMC Ultra Lock (PN 388517) or Loctite 271.



C. Torque to 60 in. lbs. (5 ft. lbs.), (20 in. lbs. [2 ft. lbs.] at a time) while checking that crankshaft turns freely.



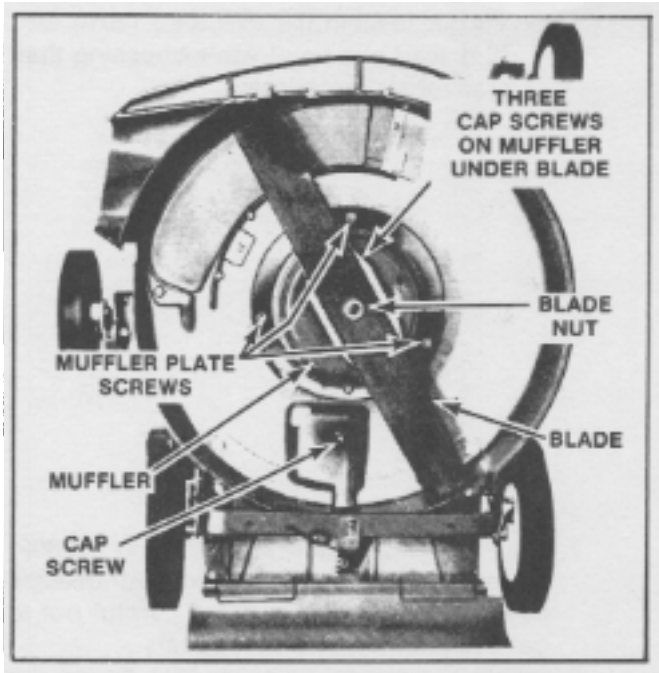
7. Apply Lawn Boy gasket maker (PN 682302) or Loctite 515 very thinly to entire crankcase cover sealing surface, being careful not to get sealant on bearings or seals.
8. Install crankcase cover so that pin on the crankcase is in the hole.
9. Make sure bearing dowels are positioned in notches of cylinder and crankcase.
10. Torque screws to 120 in. lbs. (10 ft. lbs.) gradually and alternately while checking that crankshaft moves freely.



11. Install seals, using Special Tool (PN 608976).

EXTERNAL COMPONENTS

1. Reattach flywheel brake system.
2. Install CD Pack mounting bracket, CD pack and shroud base (see CD Pack in Section 4).
3. Clean crankshaft and flywheel hub and install flywheel (see Flywheel in Section 4).
4. Install carburetor and govenor assembly (see Carburetor in Section 3).
5. Install starter and shroud assembly and starter handle bracket (see Section 5).
6. Reconnect fuel lines and electrical system leads.
7. Test ignition system and flywheel brake system (see Section 4).



8. Install muffler and crankshaft support.

WARNING

Use OMC Ultra Loc (PN 388517) or Loctite 271 on all fasteners under blade housing.

A. Install new exhaust gasket and install muffler plate.
B. Use special tool (PN 609968) to align crankshaft support.

WARNING

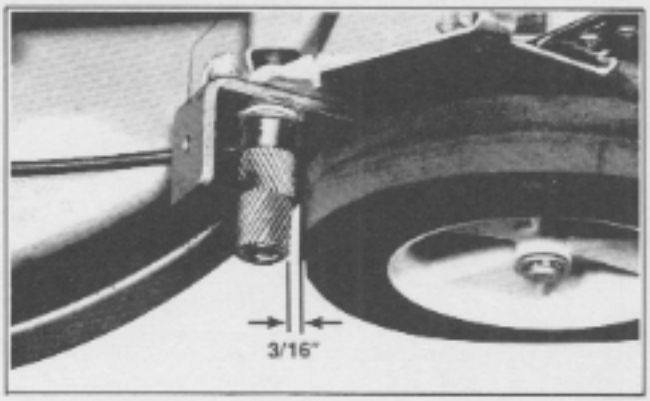
Stripping screws could cause screws to loosen and become thrown objects, causing serious injury.

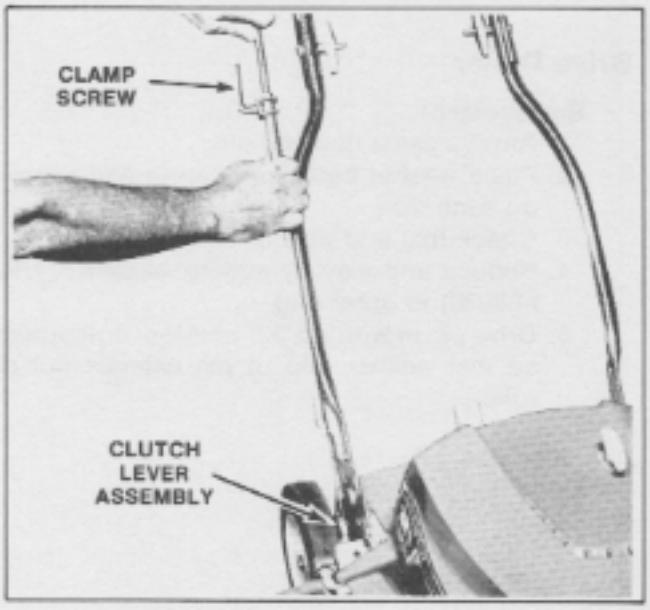
C. Install muffler cover finger tight, and torque screws carefully to 140-170 in. lbs. (12-14 ft. lbs.).
D. Install blade assembly (see Section 8); torque nut to 600 in. lbs. (50 ft. lbs.).

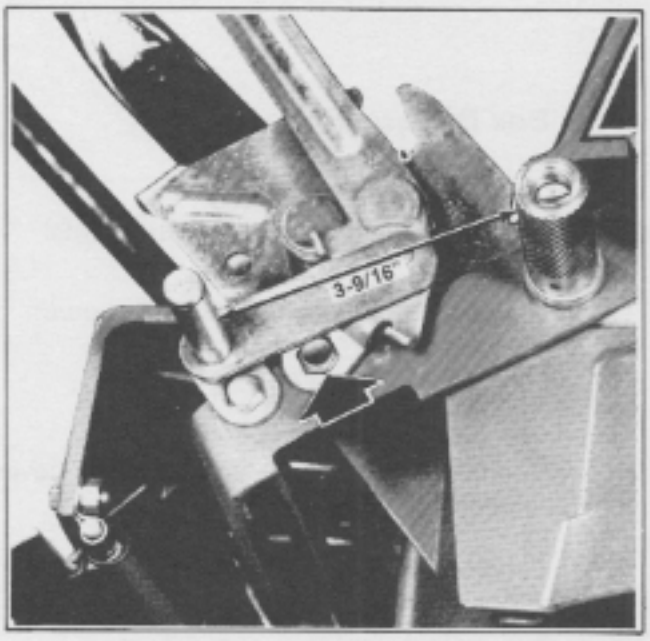
9. Check governer and carburetor adjustments (see Section 3).

7. DRIVE SYSTEM

Capstan Drive







ADJUSTMENTS

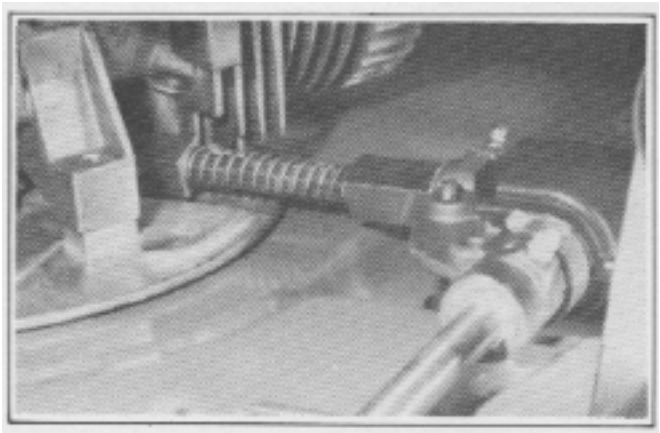
1. Place mower in "Out of Drive" position and check spacing between drive roller and wheel: it should be 3/16".

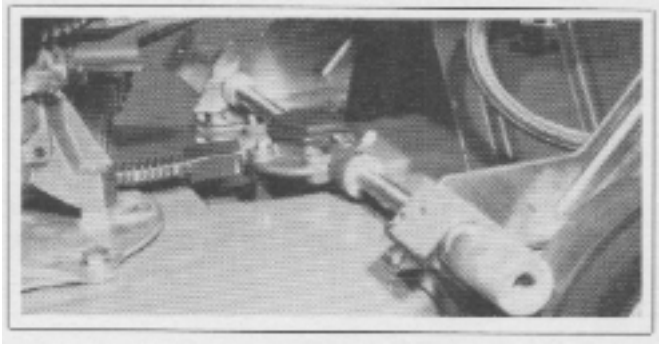
2. Pull up on clutch control lever, pull down on control rod and tighten clamp screw. Check spacing, if not correct, go to step 3.

3. Remove right rear wheel, loosen shoulder bolt and adjust axle.

WARNING

Recheck that clamp is tight: a loose clamp could cause loss of control of the mower.



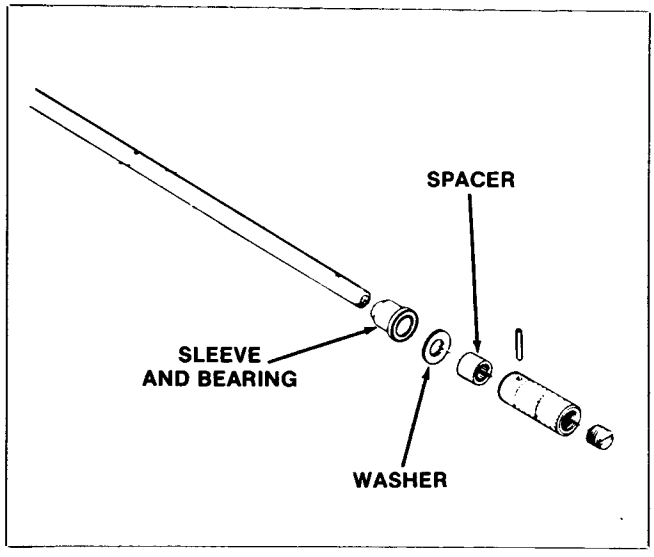


SERVICE

Drive Shaft

Replacement

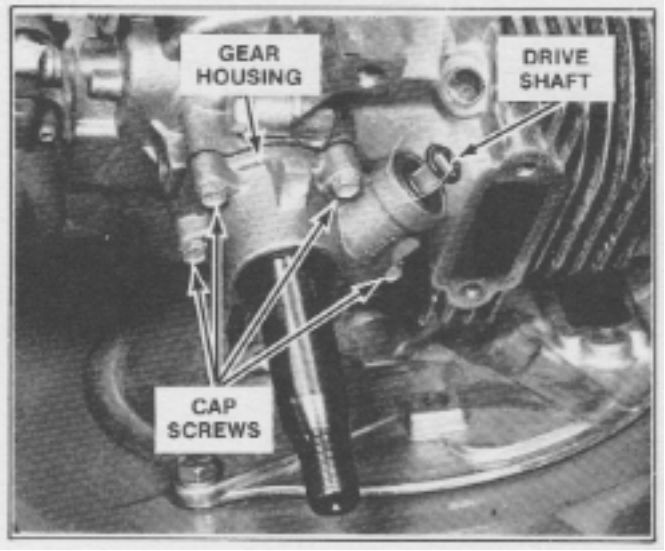
1. Install new driveshaft making sure that square bushings engage square ends of engine and transmission shafts.



Drive Roller

Replacement

1. Always use a new roll pin.
2. Place washer between bearing and spacer on each side.
3. Check that end play is .062" or less.
4. Reduce end play by adding washer(s) (PN 608030) to outer end.
5. Drive pin in with a 5/32" or larger drift punch so that neither end of pin extends out of roller.

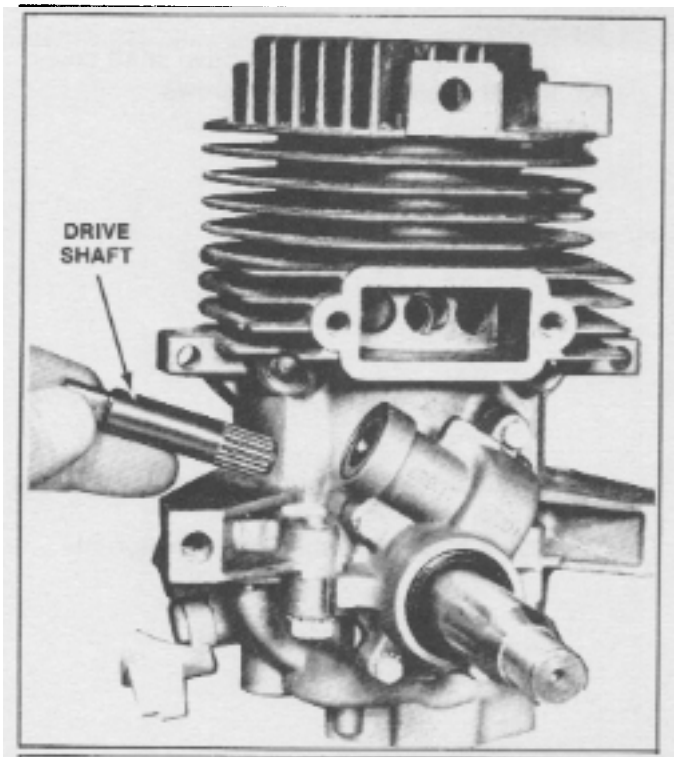


Gear Box Disassembly

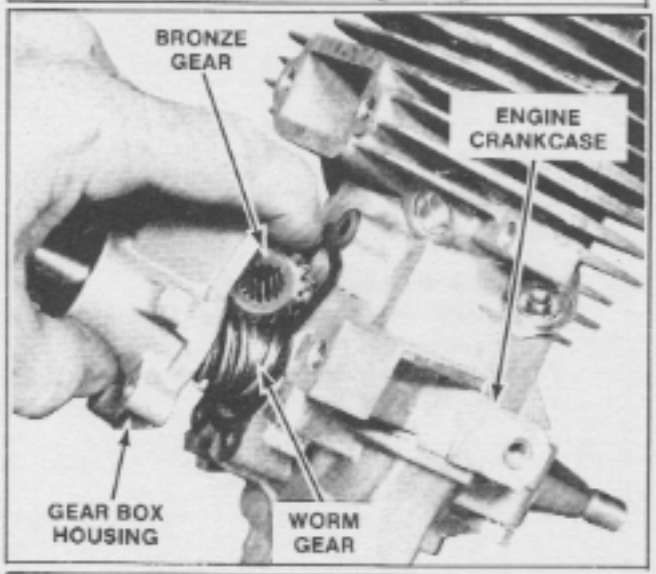
WARNING

Remove spark plug to prevent accidental starting.

1. Remove blade assembly (see Section 8).
2. Remove muffler.
3. Remove engine mounting screws.
4. Remove drive shaft.
5. Remove engine.
6. Loosen four screws securing gear cover assembly to crankcase.



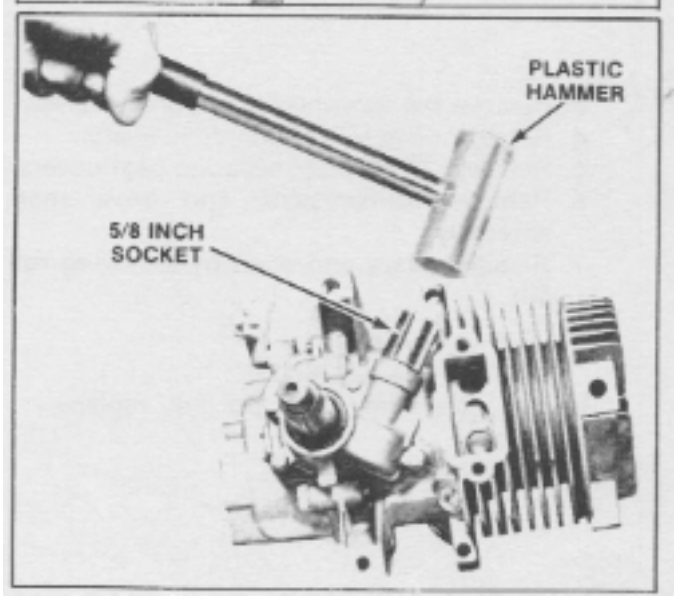
7. Remove driveshaft.



8. Remove gear box assembly.

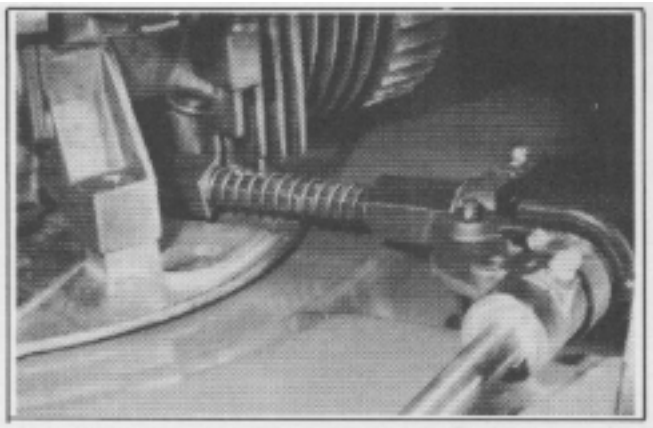
Inspection and Repair

1. Inspect bronze gear, worm gear and thrust washer for excessive wear or damage; replace if questionable.



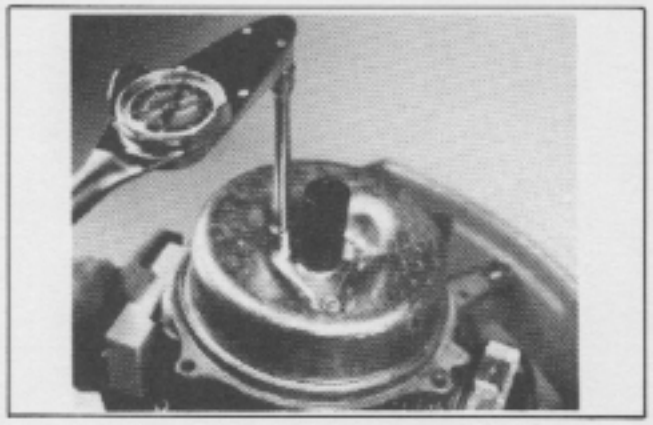
Assembly

1. Install gear thrust washer and shaft in the housing.
2. Install the assembly to the engine.
3. Install seal, using 5/8" socket and soft hammer.

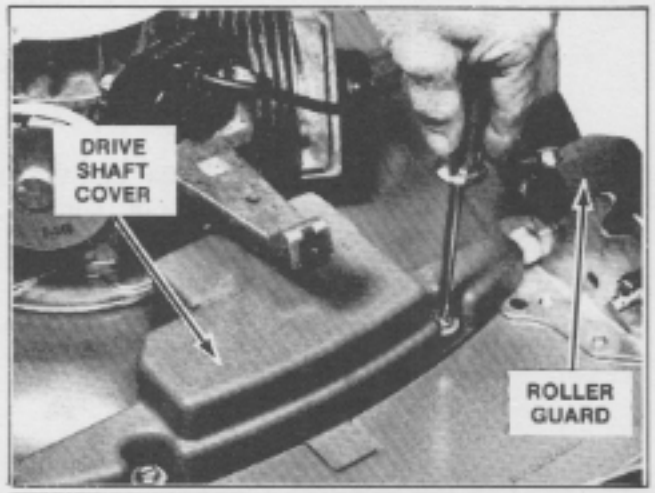


Installation

1. Install engine and install drive shaft cover.
2. Install engine mounting screws.



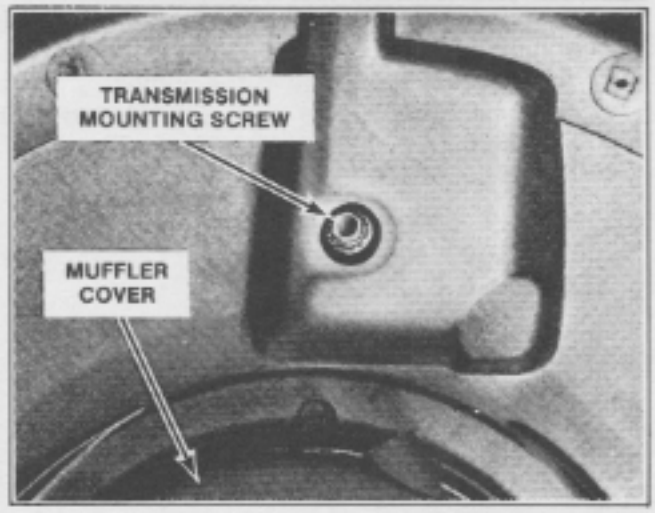
3. Install muffler and crankshaft support using gauge.
4. Install blade assembly (see Section 8).



Transmission

Removal and Disassembly

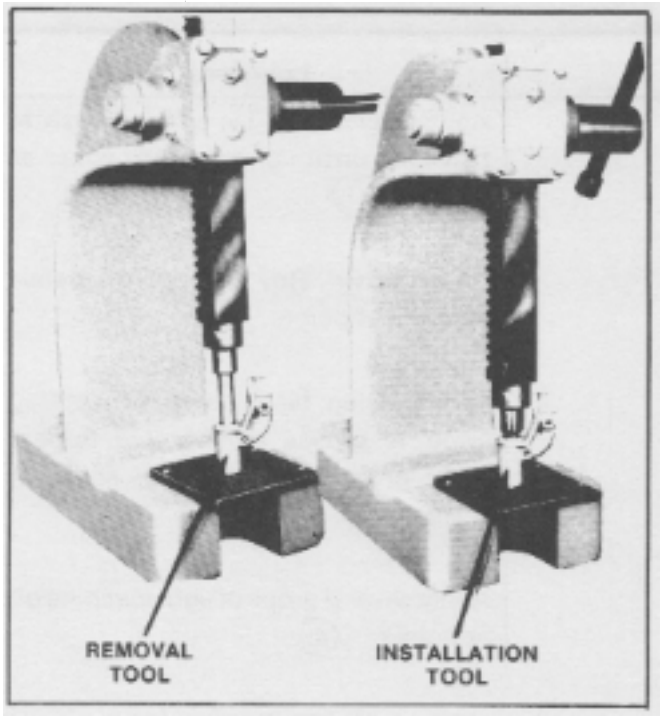
1. Remove drive shaft from engine and transmission.
2. Remove drive shaft cover.



3. Remove the transmission mounting screw.
4. Remove drive rollers and drive shafts.
5. Remove "C" clamps, securing gear covers.
6. Remove transmission and drive shaft assembly.
7. Remove gears and shaft by removing roll pin.

NOTE

Replace gears in sets. Do not replace individually.



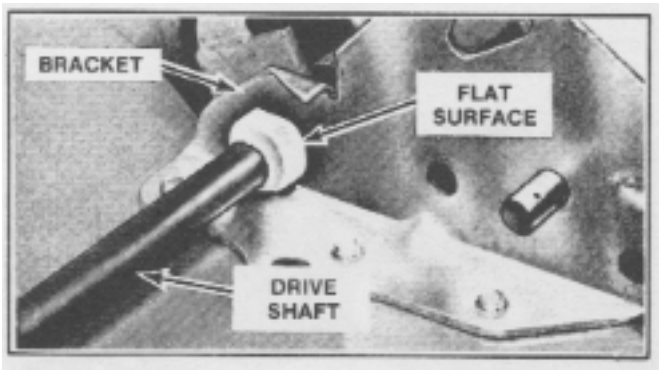
Inspection and Repair

1. Inspect gears for wear or damage and replace gears in sets.

⚠ CAUTION

Do not use hammer to remove or install bearings.

2. Replace worn bearings using arbor press, Lawn Boy Removal Tool (PN 608361) and Installation Tool (PN 608360).

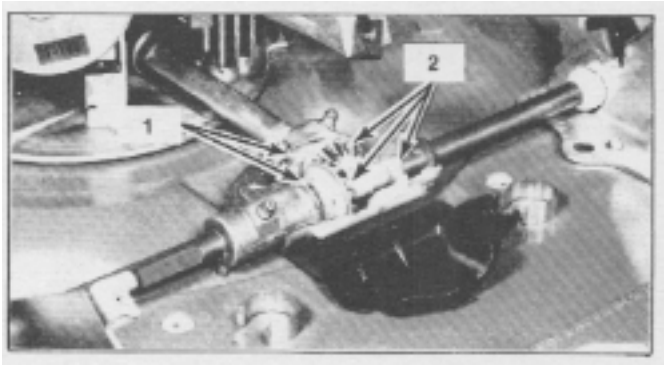


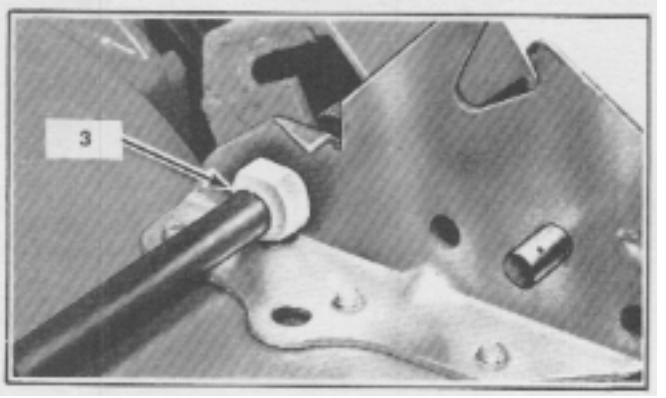
Assembly and Installation

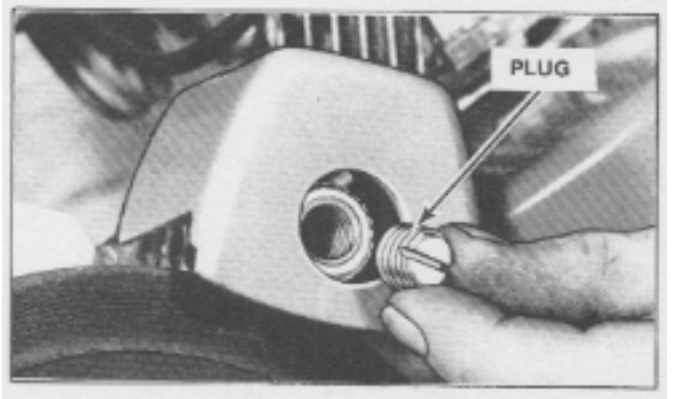
1. Note that the ends of the drive shaft are not the same.
2. Match flat side of driveshaft sleeve to flat surface of bracket when reinstalling drive shaft.
3. Torque transmission to 70 in. lbs. Do not overtighten.

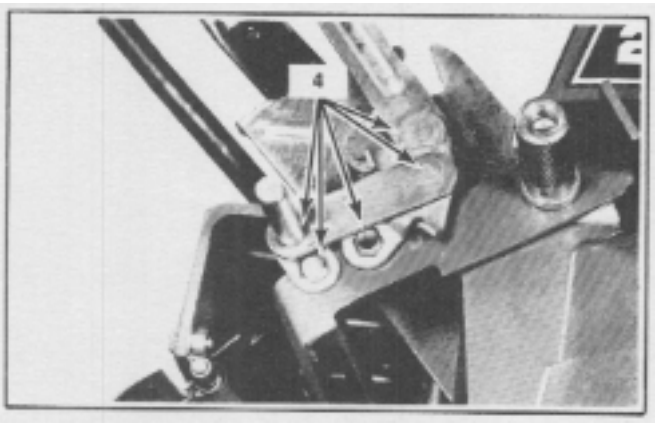
LUBRICATION

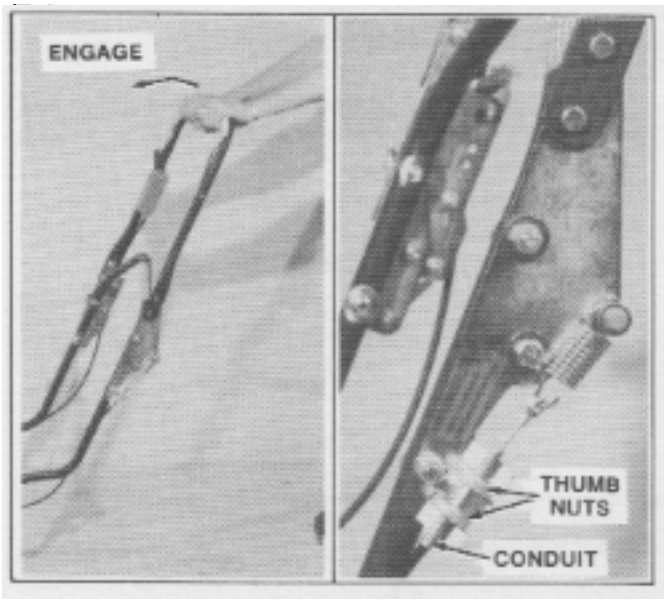
Interval	Component	Lubricant
Every 25 Hours.	Drive Gear Bearings.	Apply Lawn Boy Type "A" grease at fittings until grease appears at points (1.)
	Drive Gears.	Apply Lawn Boy Type "A" grease liberally at points (2.)
	Drive Roller Bearings.	Remove plug, fill cavity with Lawn Boy Type "A" grease, tighten plug. Repeat until grease appears on shaft at point (3.)
As Required.	Clutch Linkage.	Apply several drops of light machine oil at points (4.)











ADJUSTMENTS

Drag

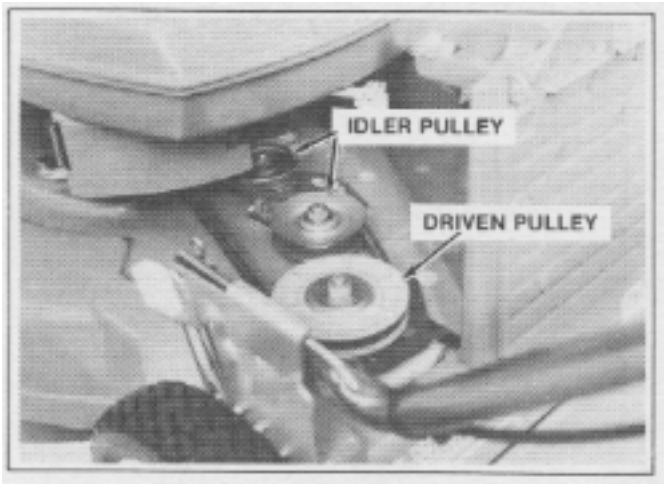
NOTE

Drag generally requires adjustment about once a year.

NOTE

Mower should not creep when disengaged; or have excessive drag when pulled backward.

1. Loosen and adjust thumb nuts to move conduit fitting down handle until cable and spring have no slack.
2. Check that spring extends when control is engaged and is snug when control is released.
3. Repeat until drive is adjusted and lock thumb nuts.

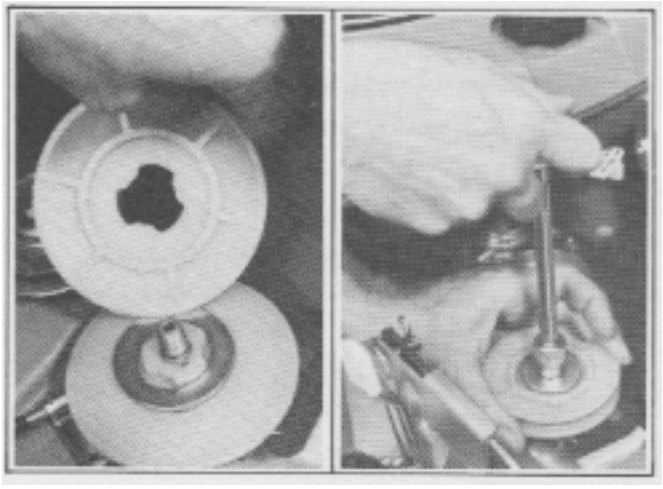


Changing Ground Speed

WARNING

Remove spark plug to prevent accidental starting.

1. Remove pulley cover and top half of driven pulley.

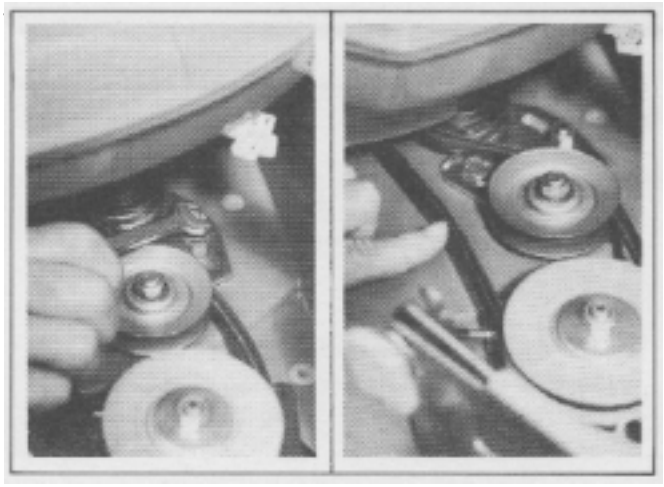


2. Select number of spacers to install between pulley halves according to chart below.

NOTE

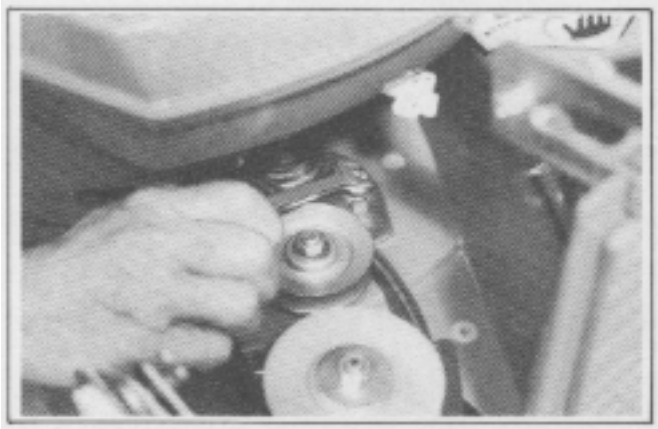
Mowers are factory assembled with 4 washers between the pulley halves.

Number of Spacers Between Pulley Halves	Number of Spacers On Top Of Pulley	Ground Speed (at 3200 RPM)
4	0	3.2
3	1	3.0
2	2	2.8
1	3	2.6
0	4	2.4



3. Assemble pulley:
   A. Make sure lower half is meshed with driven shaft in transmission.
   B. Install 0 to 4 spacers.
   C. Install top half of pulley, store any extra spacers under washer and nut and tighten nut.
4. Install belt.
5. Check belt tension.
   A. It should deflect 3/8".
   B. Adjust idler bracket nut if necessary and make sure belt is fully seated.

SERVICE

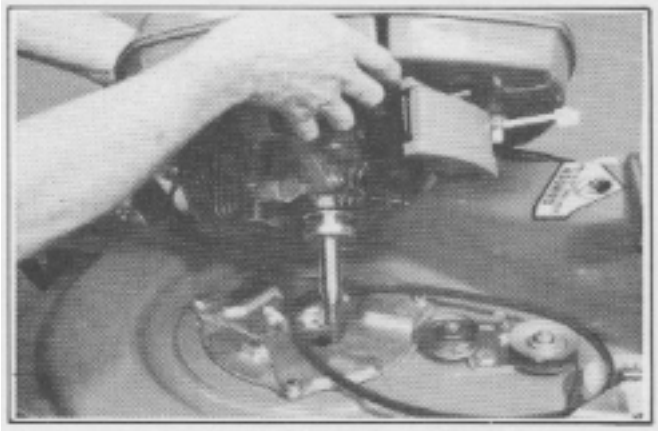


Belt Replacement

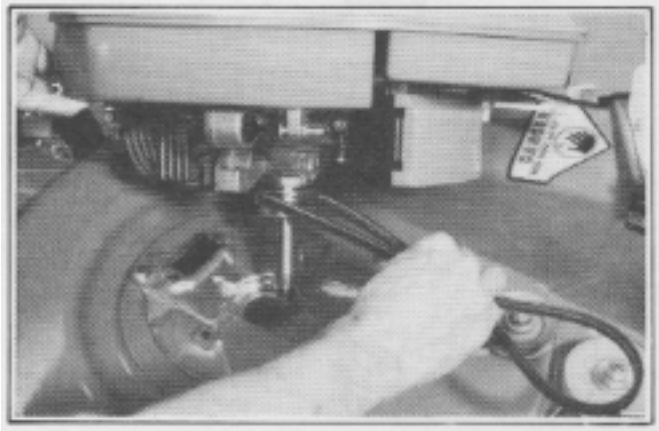
WARNING

Disconnect spark plug to prevent accidental starting.

1. Remove pulley cover, loosen nut on idler bracket, and roll belt off driven pulley.
2. Remove blade assembly and muffler.



3. Remove four engine mounting bolts, lift engine up and block it securely.

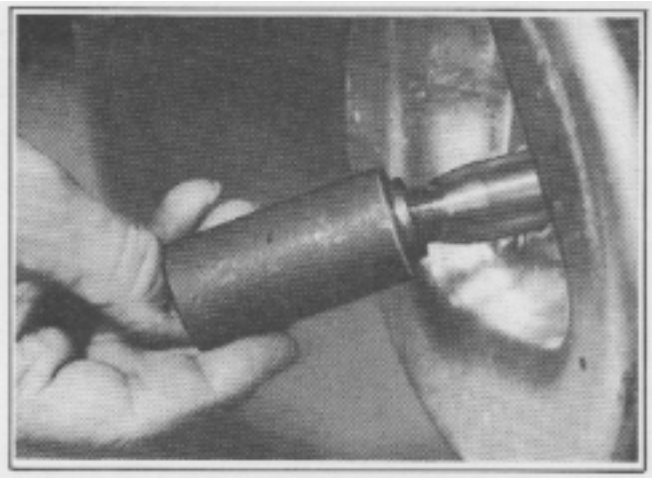


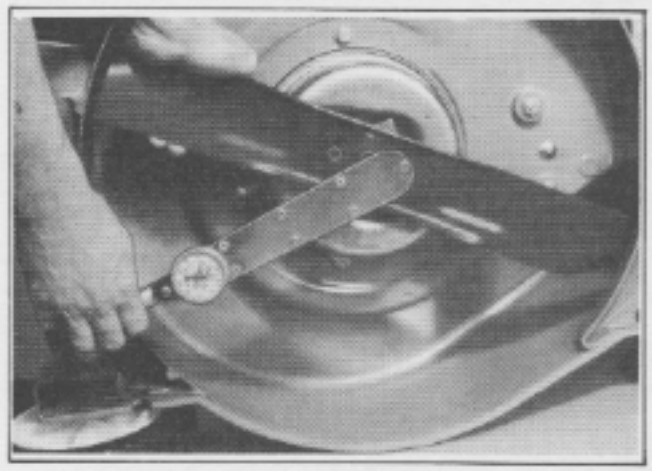
4. Replace exhaust gasket and belt.
5. Clean engine mounting bolts and apply Loc Quic Primer (PN 384884) and OMC Ultra Lock (PN 388517).

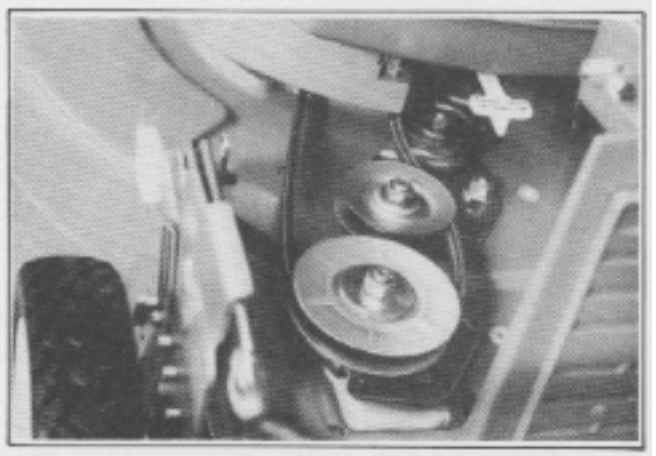
CAUTION

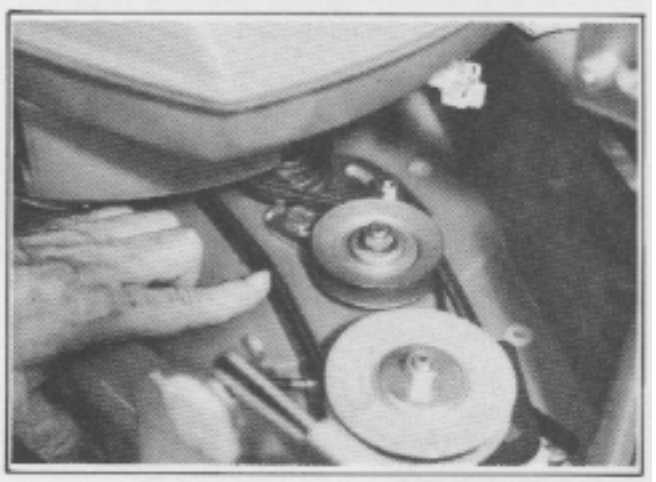
Be careful not to move exhaust gasket.

6. Install engine and torque bolts to 150-190 in. lbs. (12-16 ft. lbs.).









7. Install muffler and crankshaft support:
   A. Clean screws and apply Loc Quic Primer (PN 385884) and OMC Ultra Lock (PN388517).
   B. Start screws and install crankshaft support gauge (PN 609968).
   C. Torque screws to 142-170 in. lbs. (12-14 ft. lbs.).

8. Install blade:

CAUTION

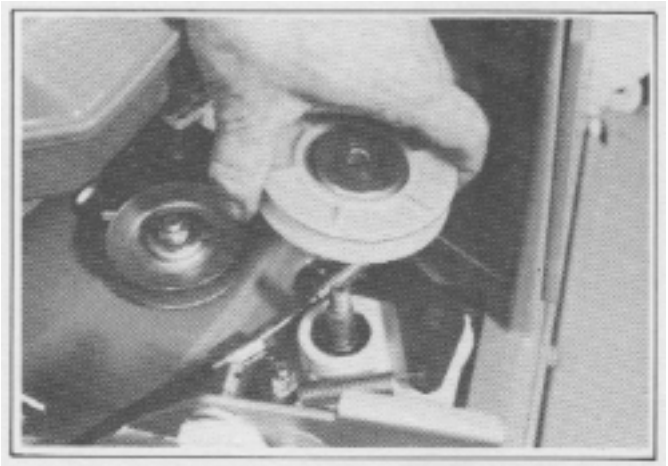
Replace blade nut if it has been on and off 4 times.

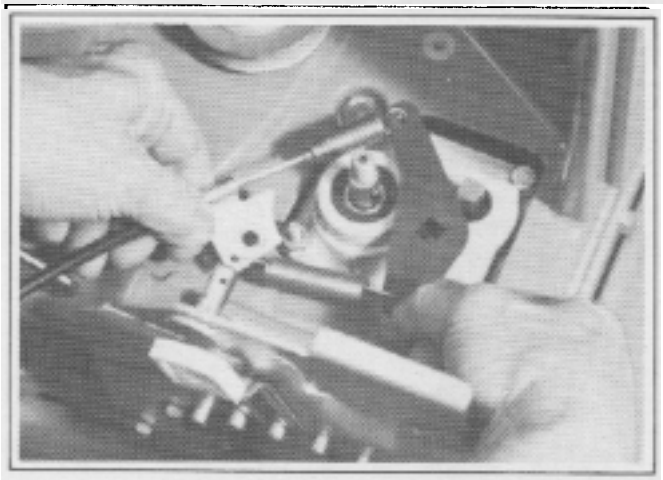
   A. Apply OMC Ultra Lock to threads of crankshaft.
   B. Assemble collar, blade and nut to crankshaft.
   C. Torque blade nut to 540-600 in. lbs. (45-50 ft. lbs.).

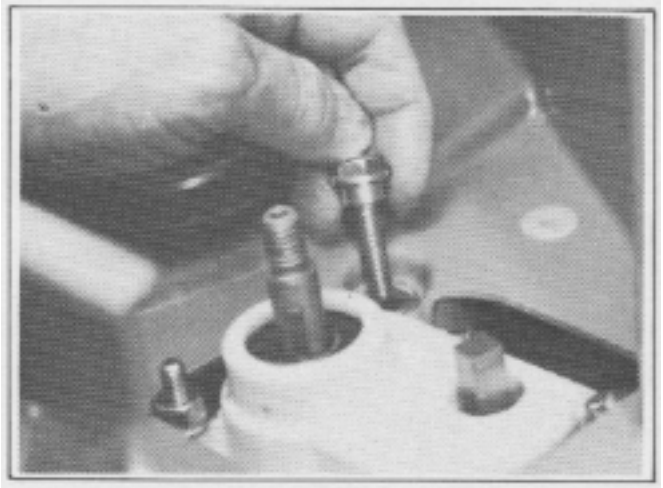
WARNING

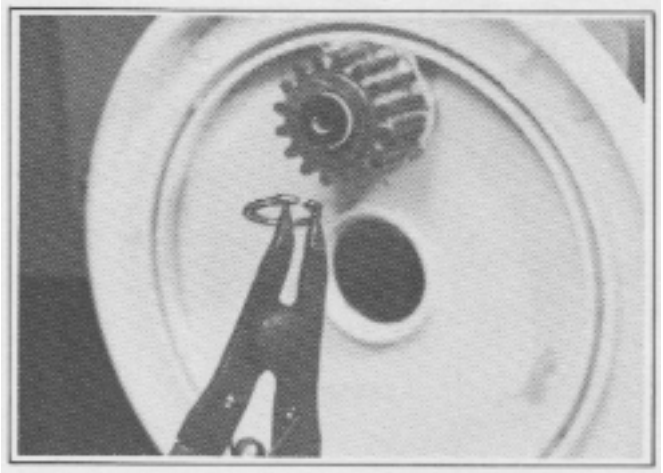
Check torque on all fasteners under housing.

9. Install belt:
   A. Install belt over idler pulley and make sure belt is seated.
   B. Move idler bracket to apply tension to the belt. Tighten the idler bracket nut.
   C. Check that belt deflects about 3/8" with firm finger pressure.
   D. Adjust nut on idler bracket if necessary.
10. Check operation of mower drive system and install pulley cover.









Transmission Repair

WARNING

Disconnect spark plug to prevent accidental starting.

Removal

1. Remove cover by removing two screws.
2. Disconnect clutch cable assembly:
   A. Remove driven pulley.
   B. Remove nut from transmission bolt.
3. Detach transmission from housing:
   A. Remove "O" ring, shift arm and spring.
   B. Remove shoulder bolt and nut.
4. Remove wheels.
5. Remove pinion gear assembly (retaining ring, gear, key, spring, retaining ring) and wheel cover on each side.

NOTE

Key is spring loaded — be careful not to lose parts.

6. Remove handle and set aside.

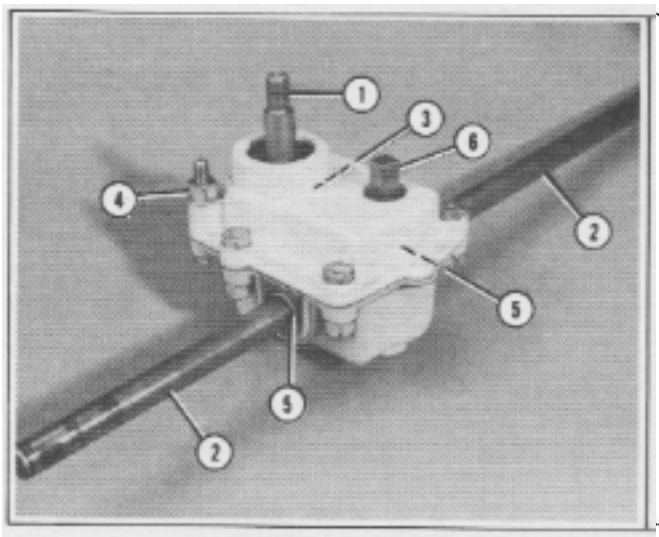
CAUTION

Use care not to damage the flywheel brake cable.

7. Remove right hand wheel bracket and remove transmission and shaft assembly from left side.

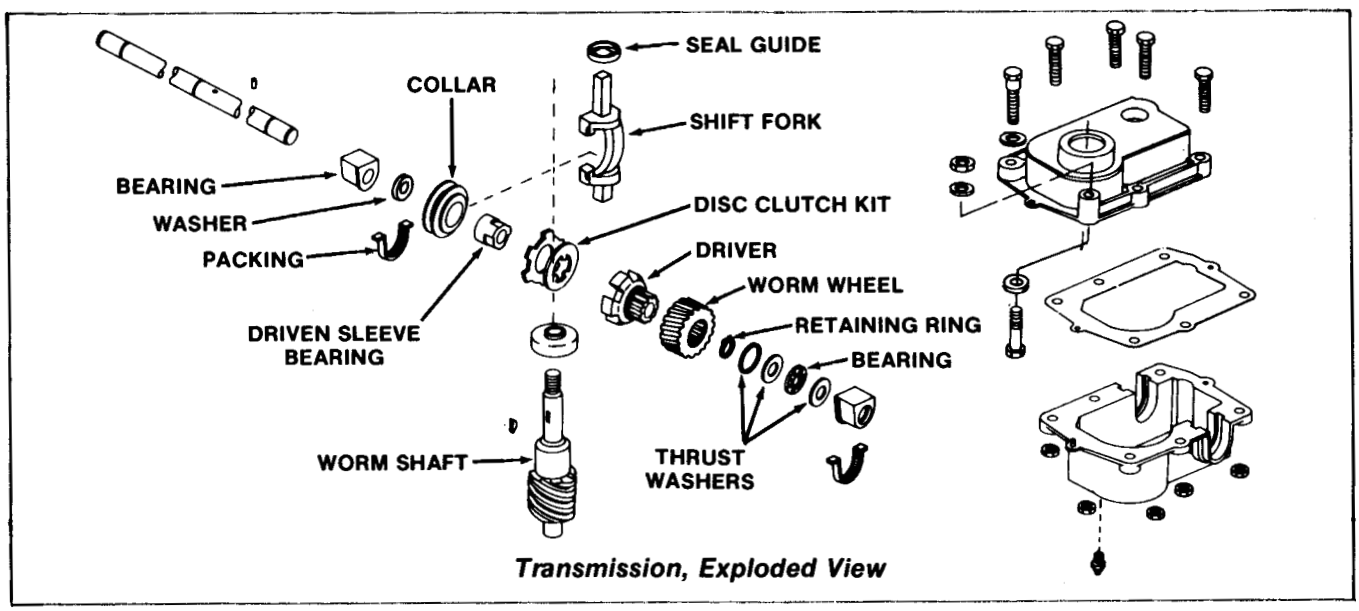
Inspection and Repair

1. Clean all parts.
2. Inspect all parts for wear or damage.
3. Check right hand wheel bracket.
   A. Check bronze bearing surfaces for damage or wear.
4. Check transmission parts.
   A. Replace both worm and worm wheel if either is worn.
   B. Replace all driven or driver plates if one or more plates in a set is worn.
5. Replace packings and gasket if transmission is completely torn down.

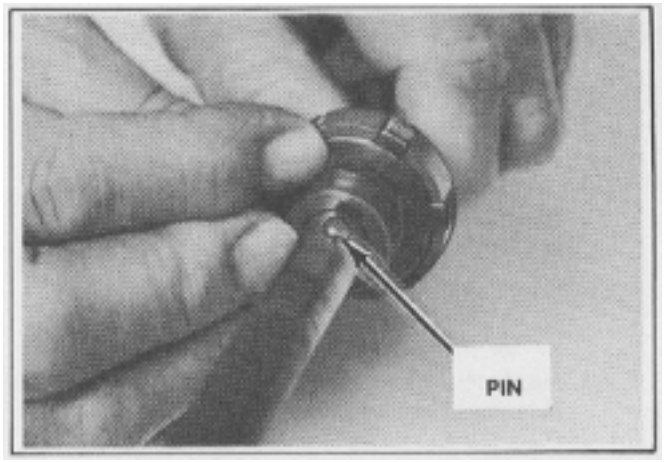


1. INPUT SHAFT
2. DRIVE SHAFT
3. TRANSMISSION MOUNTING BOLT HOLE
4. CONTROL CABLE MOUNTING BOLT
5. SEALS
6. SHIFT FORK

Transmission Assembled

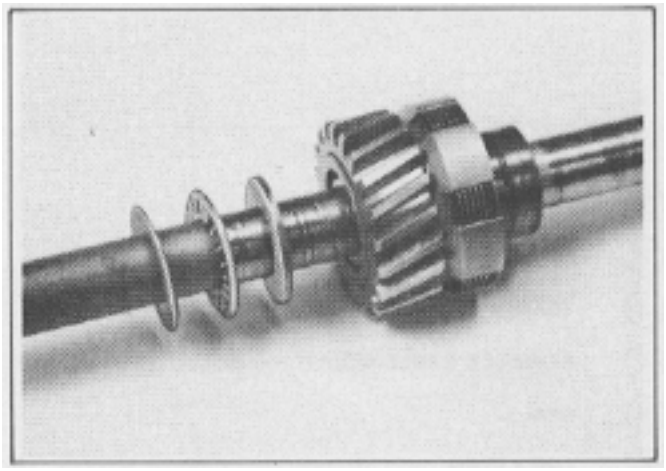


Transmission, Exploded View

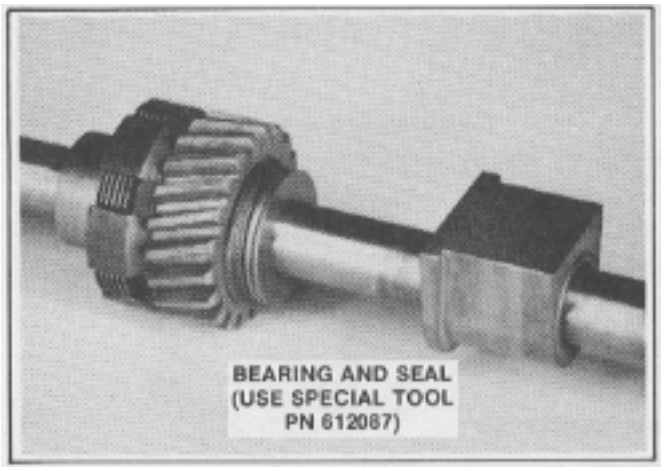


Reassembly

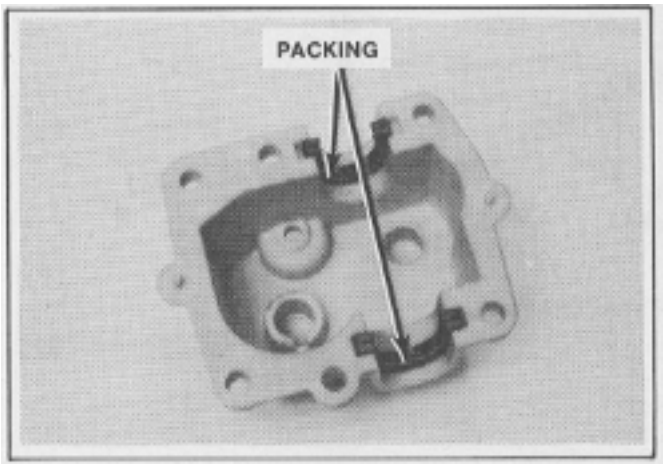
1. Assemble six (6) driver plates and seven (7) driven plates; installing a driven plate first, then alternating and finally installing sleeve.
2. Install pin and clutch assembly.



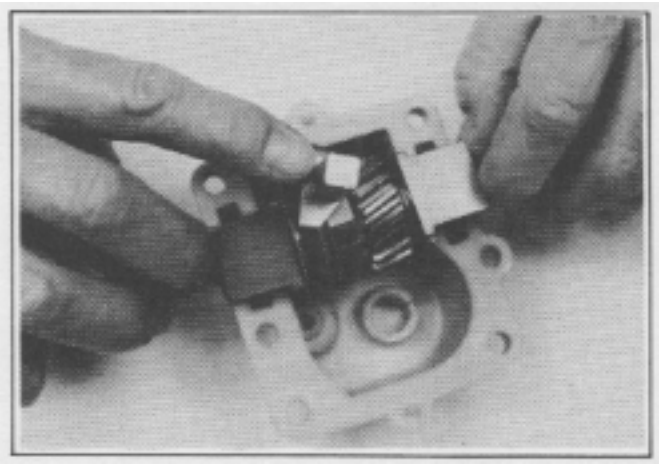
3. Install and seat snap ring, worm wheel, spacer washer, thick thrust race, thrust bearing and thin thrust race.

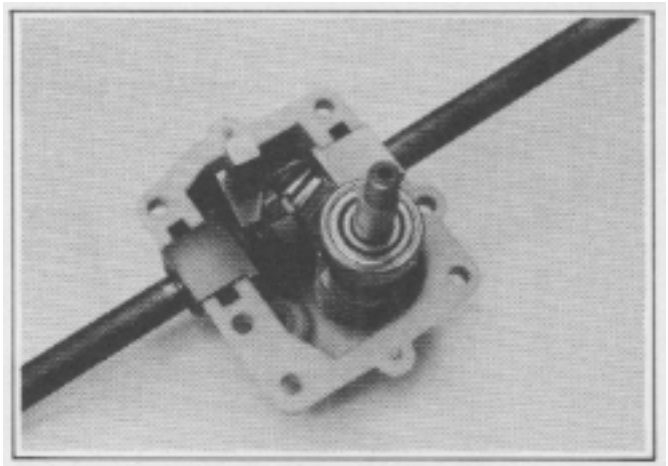


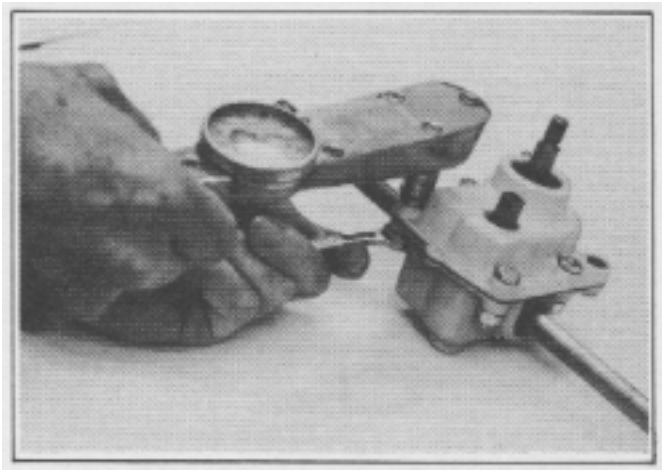
4. Install bearing and seal, using Special Tool (PN 612087).
5. Install shift collar with shoulder facing clutch and large washer.
6. Install second bearing and seal using Special Tool (PN 612087).

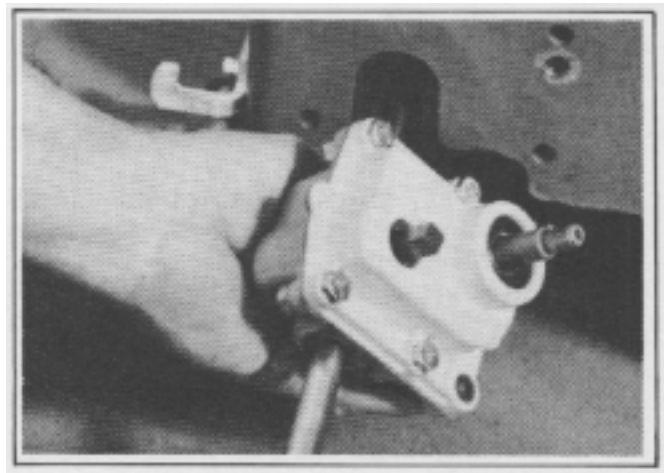


7. Place new packing in lower gearcase.









8. Install shaft assembly:
   A. Check that large spacer washer is seated in worm wheel.
   B. Push both bearings in.
   C. Install shift fork in groove of collar.
   D. Place assembly in gear case, guiding lower end of shift fork into pivot hole.
9. Install worm gear and check that assembly turns freely.
10. Fill lower case with Lawn Boy Type "A" grease.
11. Install new gasket and install cover, making sure locating pins are in holes.

12. Install bolts:
   A. Install four short bolts hand tight.
   B. Install one long bolt with washer, hand tight.
   C. Torque four short bolts in criss-cross pattern, first to 20 in. lbs. (2 ft. lbs.) and then to final torque of 35-45 in. lbs. (3-4 ft. lbs.).
   D. Torque long bolts to 35-45 in. lbs. (3-4 ft. lbs.).
   E. Check that shaft rotates in both directions.
   F. Recheck that torque is 35-45 in. lbs. (3-4 ft. lbs.) on all five bolts.

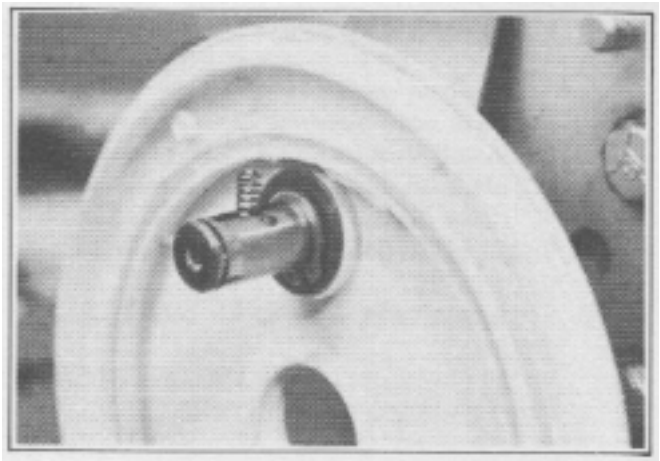
Installation

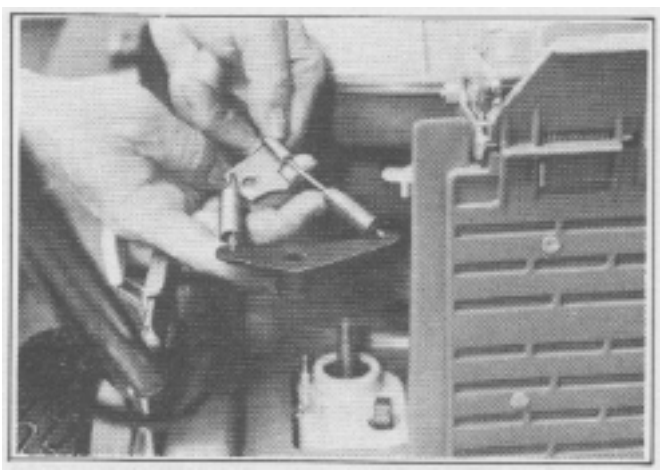
1. Install transmission in mower housing.
2. Install shoulder mounting bolt, washer, and nut. Torque nut to 35-45 in. lbs. (3-4 ft. lbs.).
3. Install right bracket assembly and torque nuts to 142-170 in. lbs. (12-14 ft. lbs.).

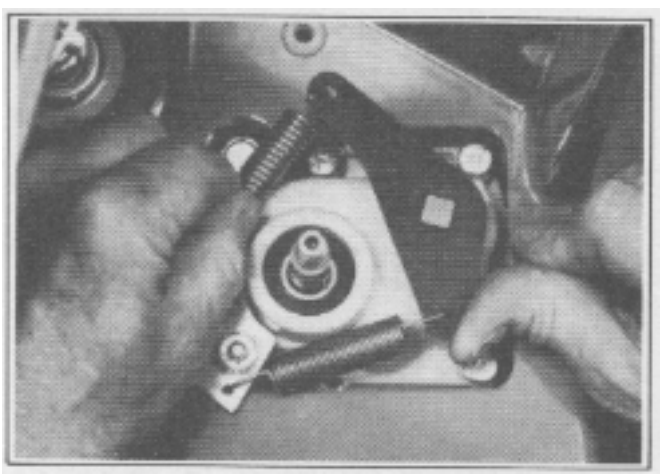
NOTE

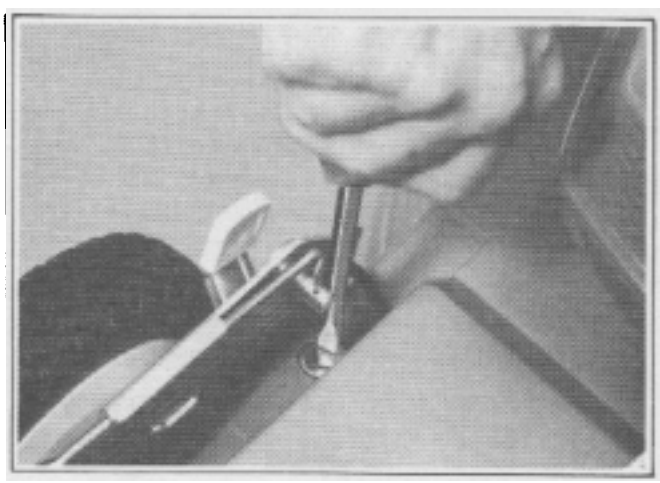
Wheel cover, pinion gear and wheel are installed in the same manner on both sides.

   A. Apply Lawn Boy Type "A" grease to groove to keep dirt out of gear area.
   B. Install wheel cover.









5. Install pinion gear:
   A. Install washer, retaining ring and spacer on shaft.
   B. Apply Lawn Boy Type "A" grease to keyways.
   C. Install spring and key.
   D. Push down on key, slide on gear, install spacer and retaining ring.
   E. Check that gear turns freely and clicks when turned forward; and stops when turned backward. (If it does not, reinstall gear with gear turned end for end.)
6. Install wheel:
   A. Apply thin film of Lawn Boy oil to wheel bolt.
   B. Install wheel.
   C. Apply generous amount of Lawn Boy Type A grease to planetary gear of wheel.
7. Install handle with hairpin clip.
8. Install clutch cable assembly:
   A. Install "O" ring retainer cup on square shift fork shaft with open side facing up.
   B. Install "O" ring on hub of clutch arm.
   C. Attach springs.
   D. Press clutch arm into place.
   E. Install clutch cable bracket on long bolt in transmission so that edge of bracket is seated against transmission housing and torque nut to 35-45 in. lbs. (3-4 ft. lbs.).

9. Check clutch adjustment.
   A. Turn clutch arm counter-clockwise and hold, then move cable spring: There should be no tension on spring and the hook should move slightly when pushed with finger.

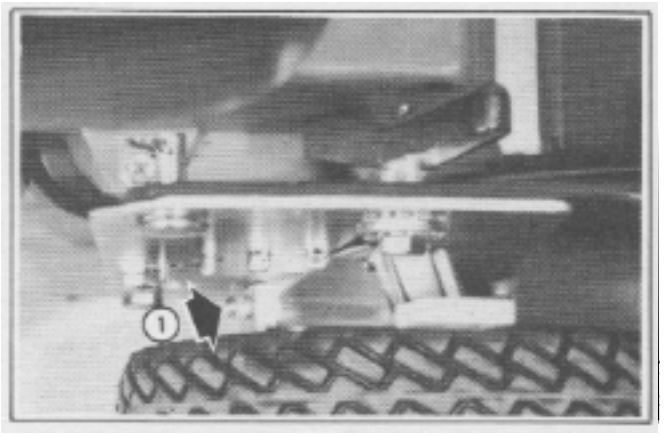
NOTE

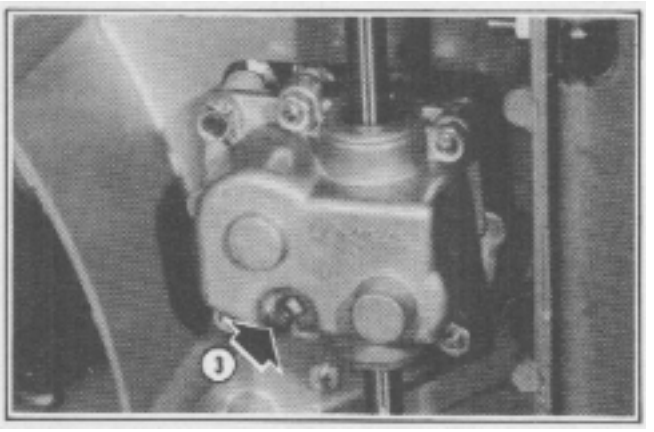
If spring is too loose, clutch and therefore transmission will slip; if spring is too tight, mower will creep.

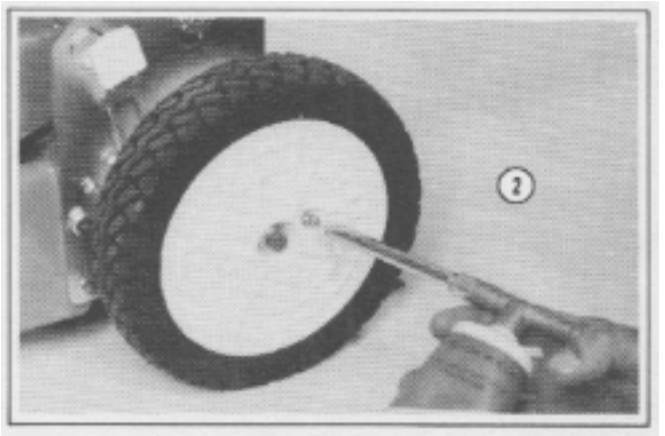
10. If cable is replaced, secure new cable with tie wrap.
11. Reassemble driven pulley washer and speed control washers as outlined in Adjustments in this subsection.
12. Check operation and adjustments.
    A. Check engine speed (high speed 3300 RPM; low speed 2400-2600 RPM).
    B. Check carburetor adjustment.
    C. Check transmission operation.
    D. Check that blade stops within 3 seconds.

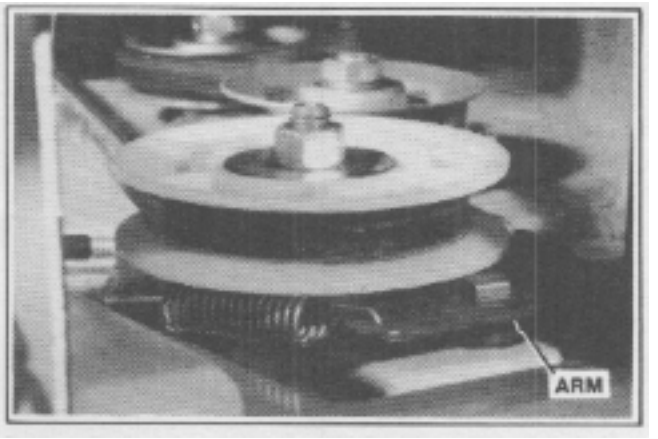
LUBRICATION

Interval	Component	Lubricant
Every 50 hours.	Rear wheel bolt, bearing.	Lawn Boy Type "A" grease.
	Front and rear wheels.	Lawnboy Type "A" grease.
	Axle shaft and wheel bracket bearing. (1)	Lawn Boy Type "A" grease.
Whenever part is removed, or submerged in water.	Wheel. (2)	
	Wheel cover.	
Whenever seepage is noted from seals or in gasket area or 50 hrs.	Transmission. (3)	***CAUTION:*** Add grease carefully to transmission to avoid damaging seals; if clutch arm moves up, stop immediately.









8. MOWING SYSTEM

TROUBLESHOOTING

	Cut rough, ragged.	Cut uneven.	Cut high in middle or on one side.	Lack of power.
Blade dull, nicked.	■	■		■
Blade not balanced.	■	■		■
Blade not tracking (level).		■	■	
Blade bent.	■	■		
Blade collar bent.		■		
Wheel height unequal.		■		
Mower housing bent, warped.		■		
Crankshaft bent.	■	■		
Engine speed insufficient.	■			■
Blade tip speed insufficient.	■			■
Grass too long.				■
Grass too wet.	■			■
Turf rough and uneven.		■		
Ground speed too fast for cutting conditions.	■		■	■
Mowing habits erratic. Erratic speed (jerky). Bouncing handle, etc.		■		

SERVICE

Blades

CHECKING CONDITION

CAUTION

Always replace blades that are questionable: Vibration can cause severe engine damage and operator fatigue.

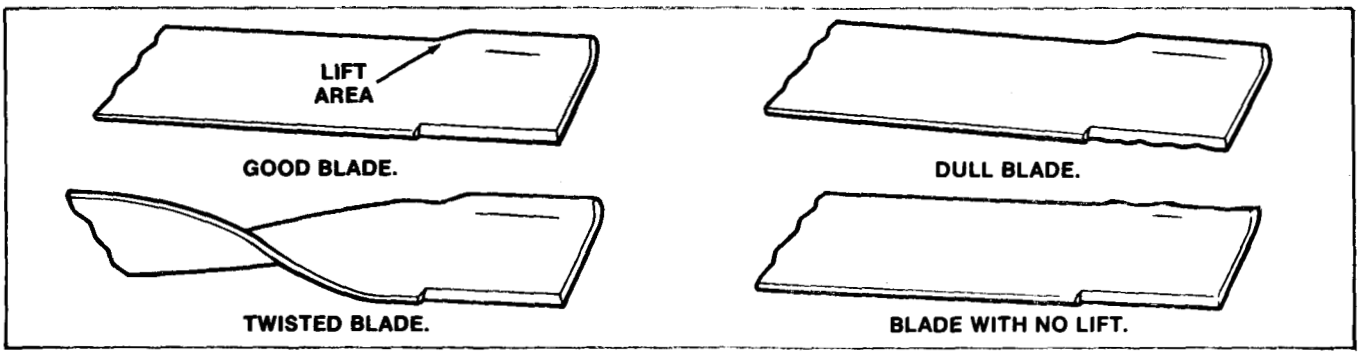
Blade Balance

1. Check balance on balancer.

WARNING

Wear eye protection when grinding.

2. If necessary, grind off heavy end of blade until balanced.



Blade Tracking

1. Check blade track.

WARNING

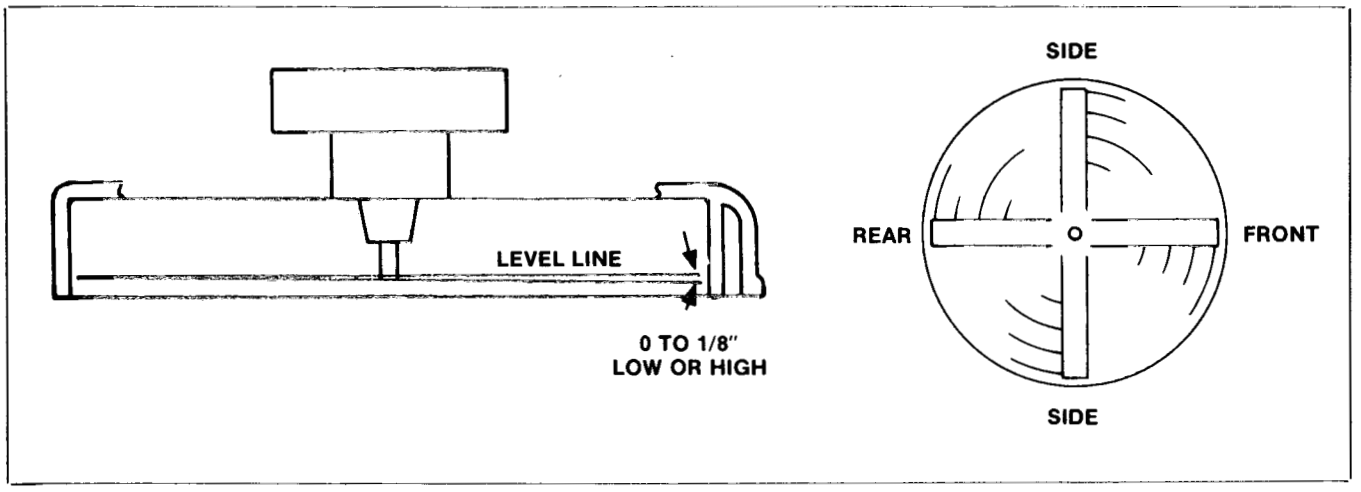
Disconnect spark plug lead to prevent accidental starting.

A. Place mower on flat level surface with wheels set at same height. (On self propelled capstan drive mowers, engage drive rollers with tires.)
B. Measure distance between level surface and one end of blade in four positions - front, rear, right side, left side: If the blade is more than 1/8" high in the front, add shims to bring the blade to level or 1/8" low in the front. Side to side the blade should be no more than 1/8" different.

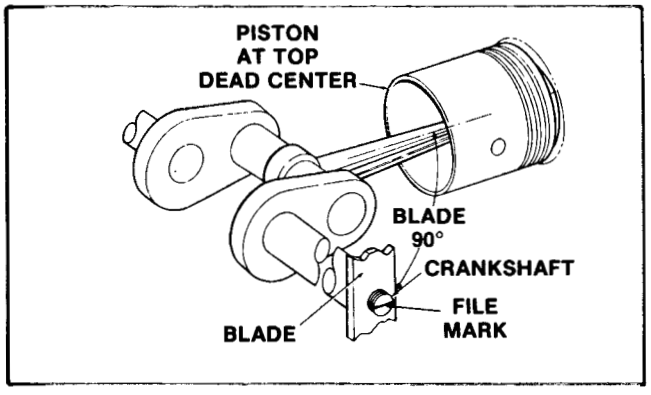
2. Adjust blade track.
   A. Place one or more spacers, listed in table below, between mower housing and muffler plate.
   B. Retighten blade nut to 600 in. lbs. (50 ft. lbs.).

CAUTION

Replace blade nut if removed or installed more than four (4) times.



Shim Spacers		
PN	**Thickness**	**Approximate Change In Blade Height**
602913	.010	A little under 1/16"
602914	.020	About 3/32"
604563	.025	About 1/8"



Alignment With Piston

NOTE

If blade is balanced and engine is not damaged, and excess vibration still exists, align blade parallel with piston at TDC.

1. Remove spark plug.
2. Loosen blade so that it turns easily by hand.
3. Move piston to top of cylinder and mount blade parallel to piston.
4. Place mark on end of the crankshaft parallel to the blade.
5. Tighten blade nut to 600 in. lbs. (50 ft. lbs.).

Blade Collar

CAUTION

Always replace damaged or bent collar to avoid vibration and rough, uneven or ragged cutting.

BLADE REPLACEMENT

WARNING

Remove spark plug to prevent accidental starting. Wear hand protection when handling blade.

1. Remove blade.

WARNING

Always use original equipment replacement blades.

2. Install new blade with beveled edge up toward housing.
3. Check that blade is tracking level (see Blade Tracking in this section).

Mower Housing

CAUTION

We recommend that only experienced welders, weld aluminum housings.

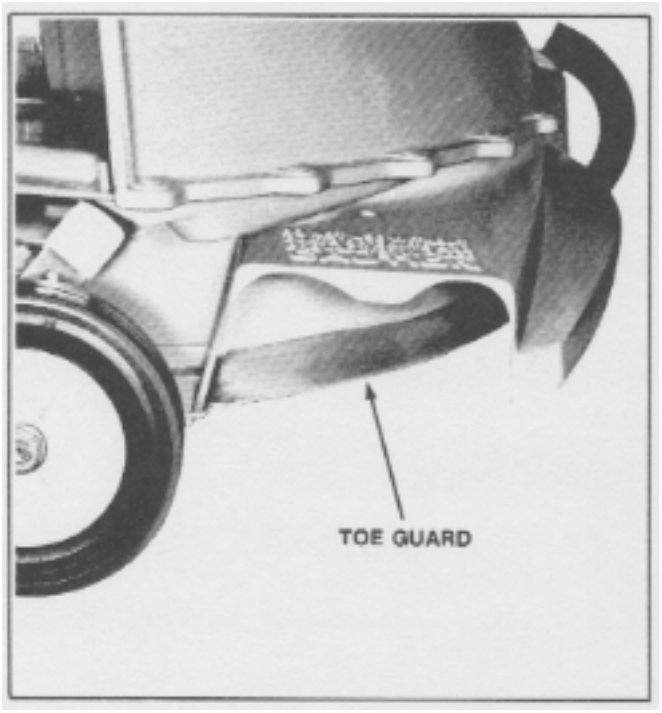
1. Weld aluminum housing using Heliarc welder in AC mode and 4043 aluminum rod.

9. SAFETY FEATURES

WARNING

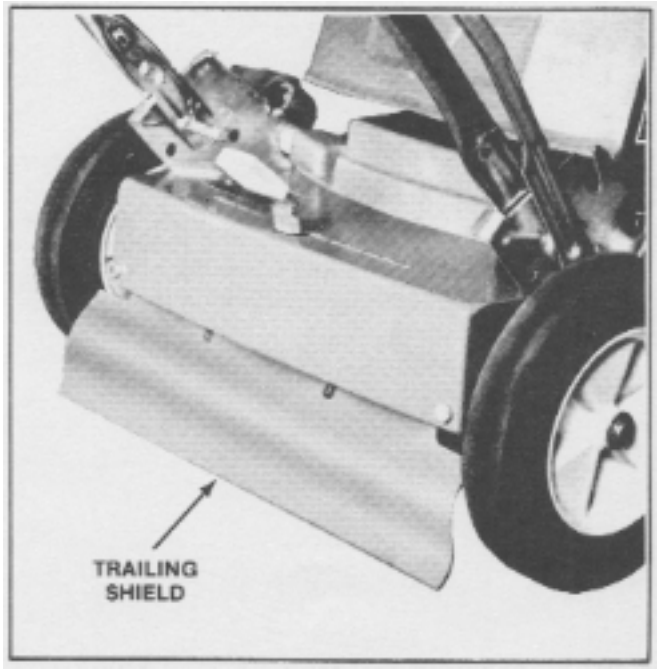
Removal of **any** safety related feature will void the warranty. The person removing a safety feature assumes the responsibility should an injury occur.

Use genuine OMC 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 bystander.



Chute Deflector (Toe Guard) (Side Discharge)

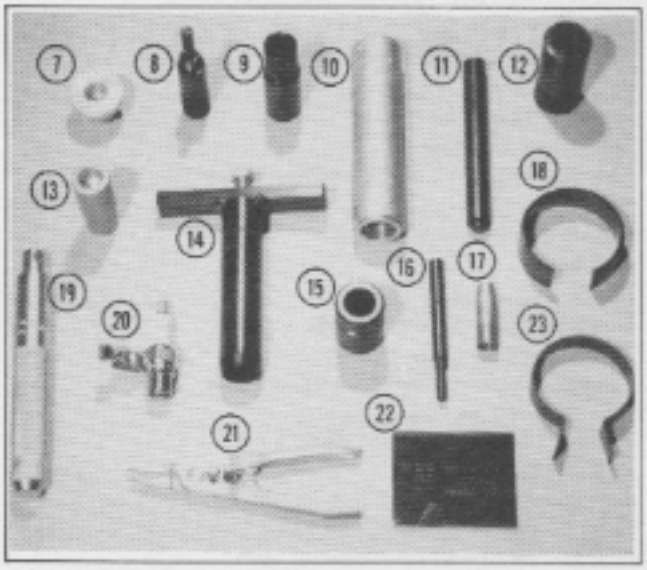
The chute deflector is designed to deflect a thrown object downward.

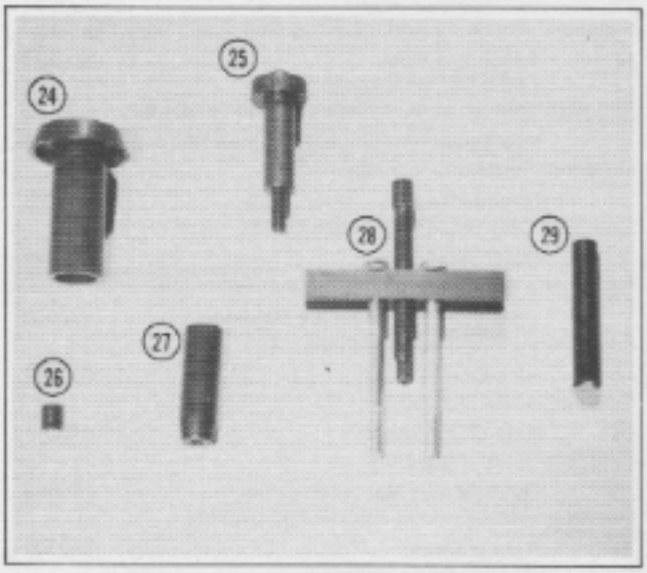


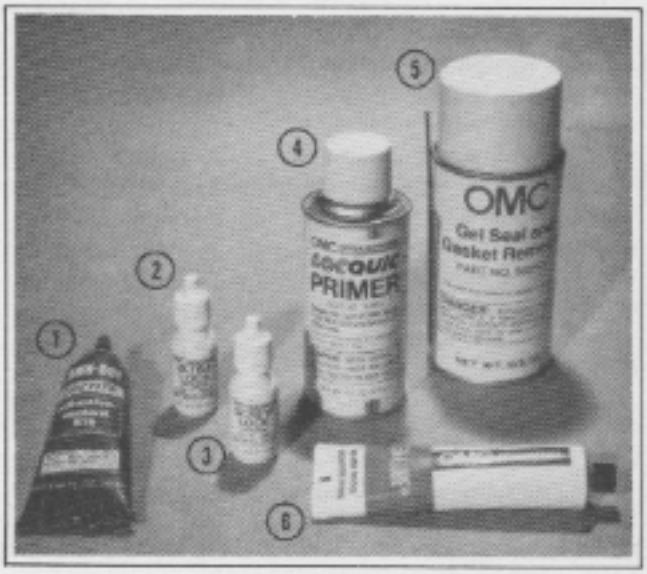
Trailing Shield

The flexible trailing shield is installed to help deflect thrown objects that may exit from the rear of the mower possibly causing injury to the operator or bystander.

10. TOOLS AND MATERIAL



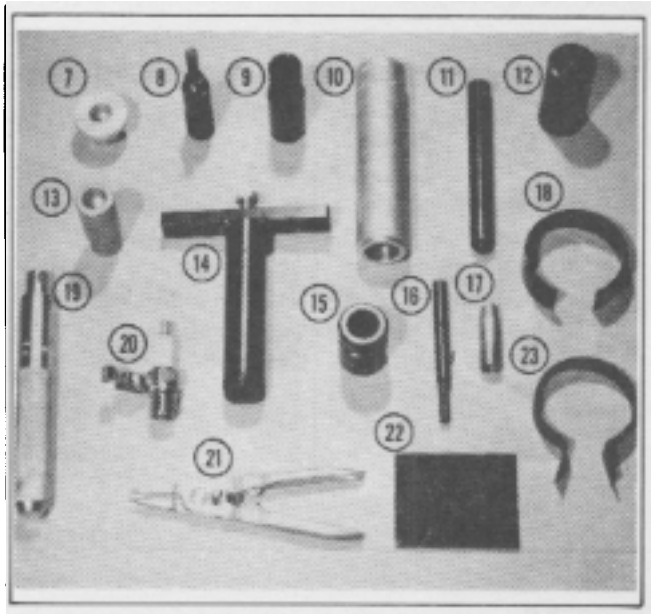


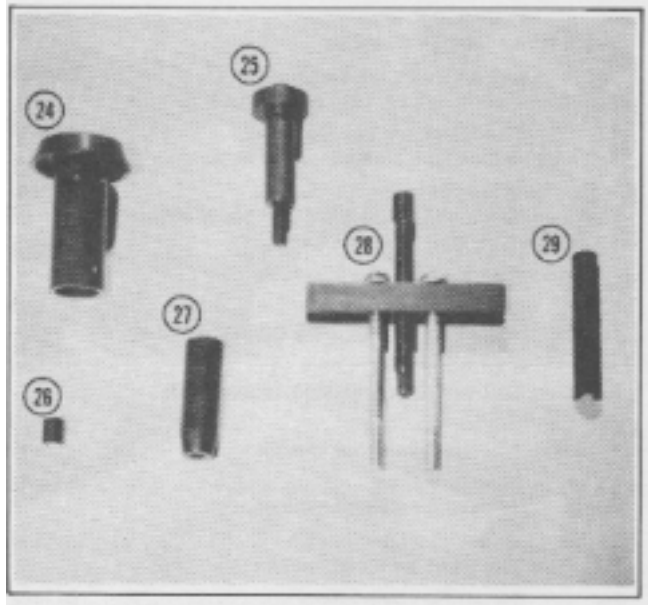


NOTE

Tools and materials are grouped by Section and are also listed in the order used. Items used in more than one section are shown under General in the first part of this section. Items with the reference numbers 7-29 are supplied with the Lawn Boy Tool Kit (PN683625).

REF. NO.	NAME	PART NO.
GENERAL		
4	Loc Quic Primer	385884
Function: Cleaning fasteners.		
3	Lawn Boy Screw Lock	384848
Function: Securing fasteners above deck.		
2	Ultra Lock (or Loctite 271)	388517
Function: Securing fasteners below deck.		
	Mower Monitor	ET301
Function: Measures blade RPM and blade stopping time.		
7	Bearing Installer	605081
Function: Not used on these models.		
12	Crankshaft Guide	602887
Function: Installing and aligning crankshaft support.		
17	Seal Protector	612087
Function: Installing transmission seals (8480)		
19	Driver Handle	683364
Function: Not used on these models.		
15	Governor Tool	612344
Function: Not used on these models.		
24	Mounting Plate Locator	611591
Function: Not used on these models.		
25	Clutch Removing Tool	611592
Function: Not used on these models.		
26	FWB Switch Gauge	611702
Function: Adjusting FWB Switch.		
27	Seal Protector	318674
Function: Installing Seals.		
28	Clutch Puller	611600
Function: Not used on these models.		
FUEL		
	Fuel Container, 2-1/2 Gal.	
Function: Mixing and storing fuel.		
	Lawn Boy Oil, 8 Oz.	
Function:		
	Kerosene or Detergent	
Function: Cleaning air filter.		
	Plastic Plugs	611545
Function: Preventing dirt from entering engine.		
	Carburetor Wrench	612231
Function: Adjusting carburetor.		





REF. NO.	NAME	PART NO.
ELECTRICAL		
	OMC Adhesive	318535
	Function: Securing CD Pack high tension lead.	
20	Test Plug	426814
	Function: Testing electrical system.	
22	Air Gap Gauge	604659
	Function: Adjusting air gap.	
8	Piston Stop	612103
	Function: Removing and installing flywheel nut.	
29	Brake Cable Gauge	611703
	Function: Adjusting brake cable.	
ENGINE		
	Intake Plug Installer	609904
	Function: Installing intake plugs.	
	3/4" Wooden Dowel	
	Function: Cleaning muffler baffle and tube.	
	7/16" Wooden Dowel	
	Function: Cleaning exhaust ports.	
11	Plug Installer	609964
	Function: Installing plugs.	
14	Seal Remover	681867
	Function: Removing main bearing seals.	
21	Compression Pliers	303857
	Function: Removing and installing piston pin retaining ring.	
16	Piston Pin Tool (Wrist Pin Knockout)	602884
	Function: Removing or installing piston (wrist) pin.	
	Flex Hone	609765
	Function: Deglazing cylinder walls.	
	Engine Tuner	610738
	Function: Cleaning crankcase surfaces.	
6	OMC Sea Lube	378642
	Function: Installing used needle bearings.	
	Connecting Rod Needle Bearings	677963
	Function: Replacement bearings.	
18	Ring Compressor	609967
	Function: Installing piston.	
23	Ring Compressor	610510
	Function: Installing piston.	
5	Gel Seal and Gasket Remover	390928
	Function: Removing old sealant and gaskets.	
	Gasket Maker	682302
	Function: Assembling crankcase.	
1	Crankcase Sealant	609790
	(smaller tube)	610377
	Function: Assembling crankcase.	
10	Seal Installer	608976
	Function: Installing crankshaft seals.	
12	Crankshaft Support Tool	609968
	Function: Installing and aligning crankshaft support.	
DRIVE SYSTEMS		
Gear		
	Washers	608030
	Function: Adjusting drive roller end play.	
	Bearing Remover	608361
	Function: Removing bearings.	
	Bearing Installer	608360
	Function: Installing bearings.	
Disk		
	Bearing and Seal Installer	617087
	Function: Installing bearing and seal.	
MOWING SYSTEMS		
	Shims	602913 602914 604563
	Function: Leveling blade.	

LAWN-BOY, A PRODUCT GROUP OF
OUTBOARD MARINE CORPORATION, MEMPHIS, TENNESSEE 38181-1120

E008075

PRINTED IN U.S.A.