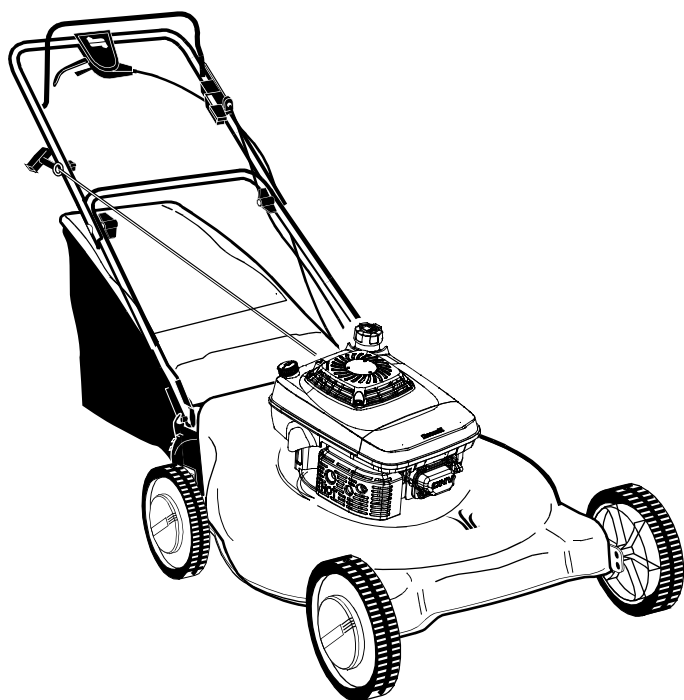




OPERATOR'S MANUAL



**21" Self-Propelled
Mower
Model Number
387**

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368023 Cleveland, Ohio 44136-9722.

CUB CADET LLC P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

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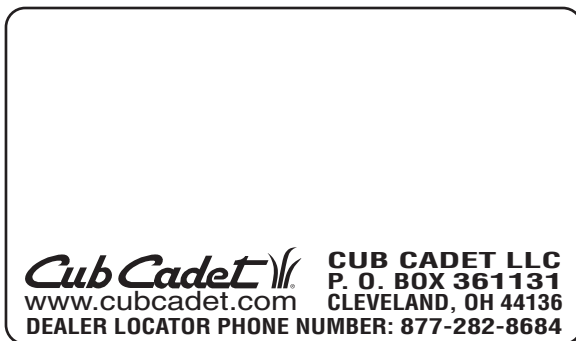
FINDING MODEL NUMBER

This Operator's Manual is an important part of your new Lawn Mower. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.



Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. The information on the model plate is very important if you need help from our Customer Support Department or an authorized dealer.

- You can locate the model number by standing behind the unit and looking at the rear of the deck. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.



Copy the model number here: _____

Copy the serial number here: _____

ENGINE INFORMATION

The engine manufacturer is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual packed separately with your unit for more information.

CALLING CUSTOMER SUPPORT

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Dealer Referral Line.



Call **1-877-282-8684** to reach the Customer Dealer Referral Line. Please have your unit's model number and serial number ready when you call. See previous section to locate this information. You may be asked to enter the serial number in order to process your call.

For more details about your unit, visit our website at www.cubcadet.com

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



WARNING: This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol - **heed its warning**.

WARNING: Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.

DANGER: This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

General Operation

1. Read this operator's manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. This machine is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform one job: to mow grass. Do not use it for any other purpose.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use this machine.
4. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys and other foreign objects which could be tripped over or picked up and thrown by the blade. Thrown objects can cause serious personal injury. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
5. To help avoid blade contact or a thrown object injury, stay in the operator zone behind the handles and keep children, bystanders, helpers and pets at least 75 feet from the mower while it is in operation. Stop machine if anyone enters the area.
6. Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
7. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Never operate this machine in bare feet, sandals, slippery or light weight (e.g. canvas) shoes.
8. Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade can amputate hands and feet.
9. A missing or damaged discharge cover can cause blade contact or thrown object injuries.
10. Many injuries occur as a result of the mower being pulled over the foot during a fall caused by slipping or tripping. Do not hold on to the mower if you are falling; release the handle immediately.
11. Never pull the mower back toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind to avoid tripping and then follow these steps:
 - a. Step back from the mower to fully extend your arms.
 - b. Be sure you are well balanced with sure footing.
 - c. Pull the mower back slowly, no more than half way toward you.
 - d. Repeat these steps as needed.
12. Do not operate the mower while under the influence of alcohol or drugs.
13. Do not engage the self-propelled mechanism on units so equipped while starting engine.
14. The blade control handle is a safety device. Never attempt to bypass its operation. Doing so makes the safety device inoperative and may result in personal injury through contact with the rotating blade. The blade control handle must operate easily in both directions and automatically return to the disengaged position when released.
15. Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your footing, release the blade control handle immediately and the blade will stop rotating within three seconds.
16. Mow only in daylight or in good artificial light. Walk, never run.
17. Stop the blade when crossing gravel drives, walks or roads.
18. If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
19. Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or

unclogging the chute. The cutting blade continues to rotate for a few seconds after the engine is shut off.

Never place any part of the body in the blade area until you are sure the blade has stopped rotating.

20. Never operate mower without proper trail shield, discharge cover, grass catcher, blade control handle or other safety protective devices in place and working. Never operate mower with damaged safety devices. Failure to do so, can result in personal injury.
21. Muffler and engine become hot and can cause a burn. Do not touch.
22. Only use parts and accessories made for this machine by the manufacturer. Failure to do so, can result in personal injury.
23. If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance. Telephone **1-877-282-8684** for the name of your nearest dealer.

Slope Operation

Slopes are a major factor related to slip and fall accidents which can result in severe injury. Operation on slopes requires extra caution. If you feel uneasy on a slope, do not mow it. For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees, do not mow it.

Do:

1. Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
2. Watch for holes, ruts, rocks, hidden objects, or bumps which can cause you to slip or trip. Tall grass can hide obstacles.
3. Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your balance, release the blade control handle immediately, and the blade will stop rotating within 3 seconds.

Do Not:

1. Do not mow near drop-offs, ditches or embankments, you could lose your footing or balance.
2. Do not mow slopes greater than 15 degrees as shown on the slope gauge.
3. Do not mow on wet grass. Unstable footing could cause slipping.

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the mower and the mowing activity. They do not understand the dangers. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
2. Be alert and turn mower off if a child enters the area.
3. Before and while moving backwards, look behind and down for small children.
4. Use extreme care when approaching blind corners, doorways, shrubs, trees, or other objects that may

obscure your vision of a child who may run into the mower.

5. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
6. Never allow children under 14 years old to operate a power mower. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.

Service

Safe Handling Of Gasoline:

1. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite.
2. Wash your skin and change clothes immediately.
3. Use only an approved gasoline container.
4. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
5. When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
6. Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
7. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
8. Never fuel machine indoors because flammable vapors will accumulate in the area.
9. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
10. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to provide space for fuel expansion.
11. Replace gasoline cap and tighten securely.
12. If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
13. Never store the machine or fuel container inside where there is an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
14. To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
15. Allow a mower to cool at least 5 minutes before storing.

General Service:

1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.

3. Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked, worn) Replace blade with the original equipment manufacture's (O.E.M.) blade only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
4. Mower blades are sharp and can cut. Wrap the blade or wear gloves, and use extra caution when servicing them.
5. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
6. Never tamper with safety devices. Check their proper operation regularly.
7. After striking a foreign object, stop the engine, disconnect the spark plug wire and ground against the engine. Thoroughly inspect the mower for any damage. Repair the damage before starting and operating the mower.
8. Never attempt to make a wheel or cutting height adjustment while the engine is running.
9. Grass catcher components, discharge cover, and trail shield are subject to wear and damage which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
10. Do not change the engine governor setting or overspeed the engine. The governor controls the maximum safe operating speed of the engine.
11. Maintain or replace safety and instruction labels, as necessary.
12. Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment.



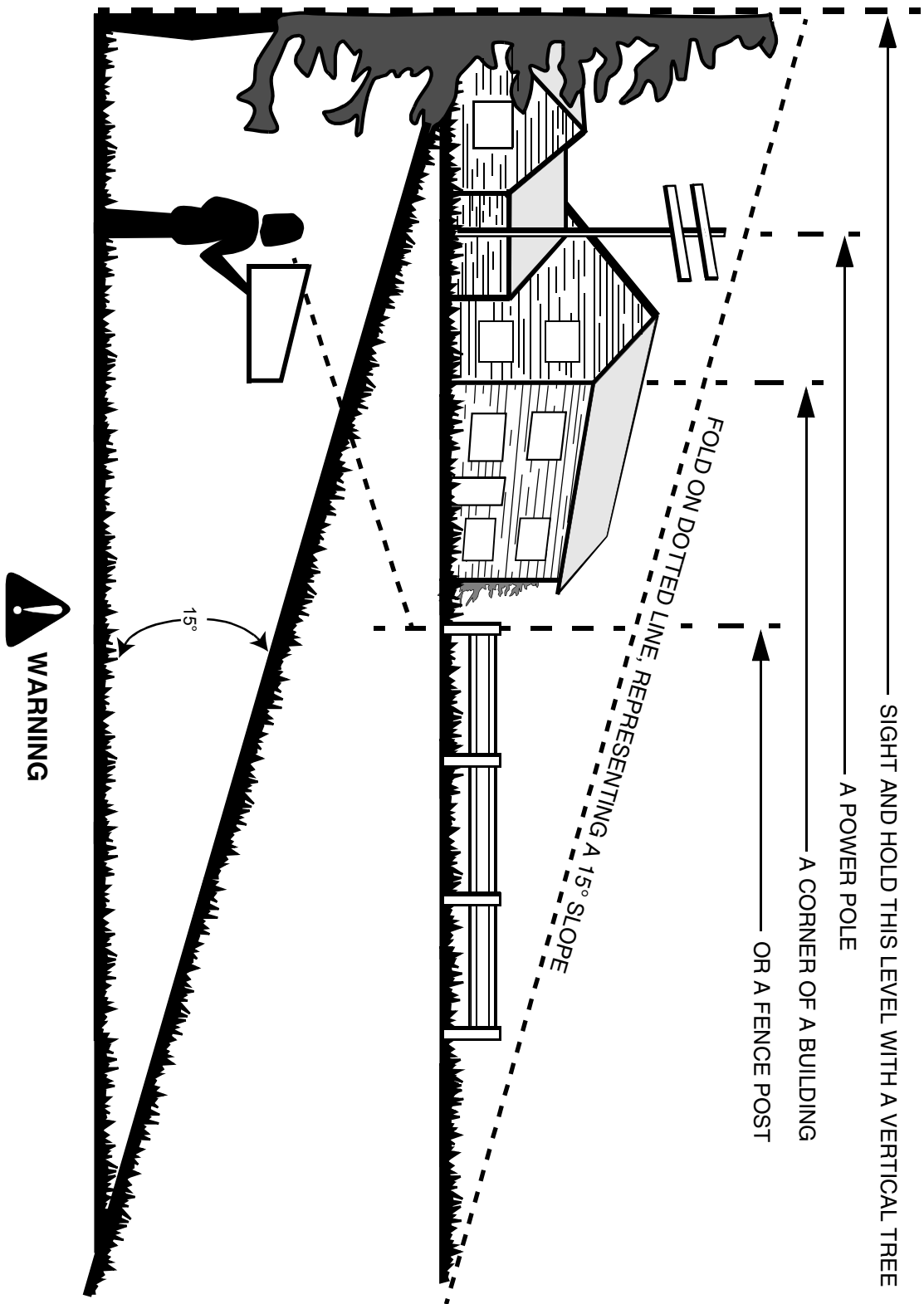
WARNING - YOUR RESPONSIBILITY: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

NOTE: *Not all safety labels shown may apply to your lawn mower.*



SECTION 2: SLOPE GAUGE

Use this page as a guide to determine slopes where you may not operate safely. **Do not operate** your lawn mower on such slopes.



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.

Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

SECTION 3: ASSEMBLING YOUR LAWN MOWER

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your mower.

NOTE: Reference to right or left hand side of the mower is observed from the operating position.

Removing Unit From Carton

- Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
- Remove loose parts if included with unit (i.e., operator's manual, oil, etc.)
- Cut along corners, lay carton down flat, and remove packing material.
- Roll or slide unit out of carton and check carton thoroughly for loose parts. See Figure 1.

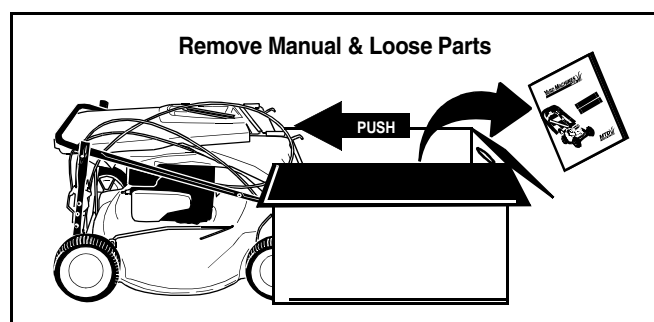


Figure 1

Disconnect Spark Plug Wire

- Before setting up your lawn mower, disconnect the spark plug wire from the spark plug and ground against the engine. See Figure 2.

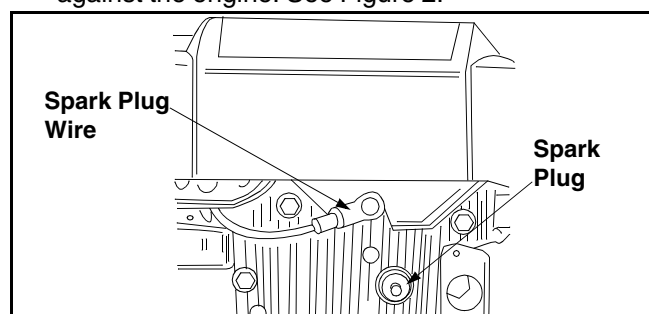


Figure 2

Setting Up Lawn Mower

- Remove the grass bag from the unit and set it aside.
- Lift the upper handle and align it with the lower handle. See Figure 3.

- Tighten the wing nuts and raise the handle assembly until it clicks into place. Make sure not to kink the control cables.

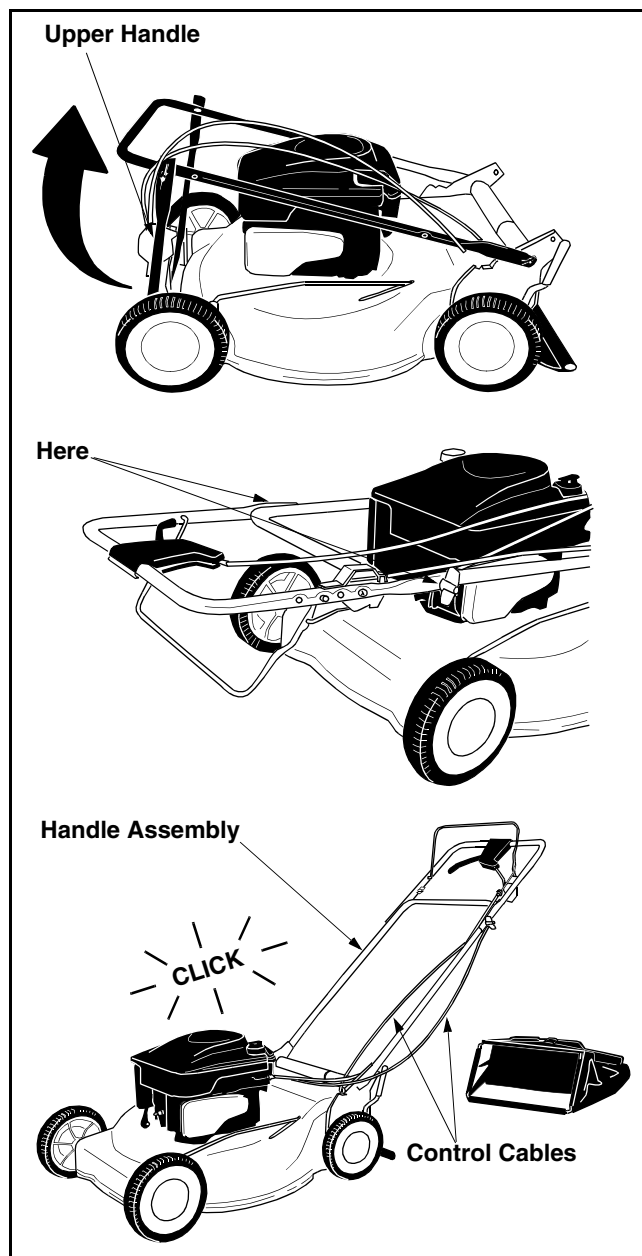


Figure 3

- Pinch the lower handle against the handle mounting bracket using pliers. See Figure 4.
- Move the hairpin clip from the outer to the inner hole on the handle mounting bracket.

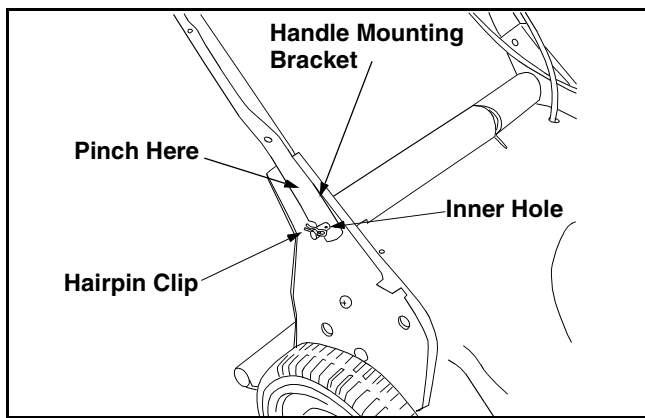


Figure 4

- Fasten the cables to the lower handle with the two cable ties found on the lower handle. Be sure to insert the post on the cable ties into the holes provided on the lower handle. These holes may be found on either the inside or outside of the handles. Pull the cable ties tight and trim off the excess. See Figure 5.

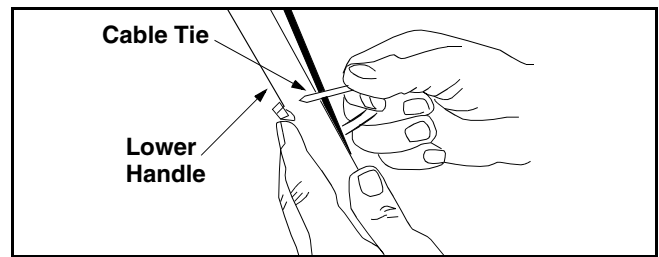


Figure 5

- Loosen the wing nut holding the rope guide to the upper handle. See Figure 6.
- Squeeze the blade control handle against the upper handle and pull starter rope out slowly.
- Thread the recoil starter rope into the rope guide and tighten the wing nut.

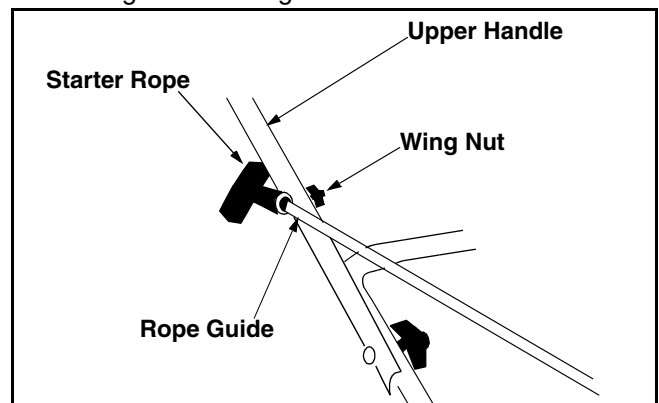


Figure 6

SECTION 4: KNOW YOUR LAWN MOWER

Read this operator's manual and safety rules before operating your lawn mower. Compare the illustrations in Figure 7 with your lawn mower to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.



WARNING: The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can damage your eyes severely. Always wear safety glasses while operating the mower, or while performing any adjustments or repairs on it.

Blade Control Handle

The blade control handle is located on the upper handle of the mower. The blade control handle must be depressed in order to operate the unit. Release blade control handle to stop engine and blade. See Figure 7.



WARNING: This blade control mechanism is a safety device. Never attempt to bypass its operations.

Drive Clutch Control

The drive clutch control is located on the upper handle. Squeeze the drive control to engage the drive system. Release the clutch control to disengage the drive system. Release the clutch control to slow down when approaching an obstacle, making a turn, or stopping. See Figure 7.

Grass Bag

The grass bag is equipped with a bag-fill indicator to add convenience to your work. While the mower is running, air will flow through the bag and into the "sail." If the grass catcher is **empty**, air flows through easily pushing the sail up. If the grass catcher is **full**, air does not flow through it allowing the sail to fall. So the position of the sail acts as a bag-fill indicator signifying when to empty the grass bag.

Cutting Height Adjustment Lever

The cutting height adjustment lever is located above the left rear wheel. To adjust the cutting height, refer to the Adjustment Section in this manual. See Figure 7.

Shift Lever

The shift lever is located on the drive clutch control housing on the upper handle. This lever is used to select the forward speed of the mower. When changing speed selection, release the drive clutch control. See Figure 7.

NOTE: Move the shift lever only when the engine is running. Changing the shift lever setting with the engine off can damage the mower.

Mulching Plug

The mulching Plug is used only for mulching purposes. Instead of collecting grass clippings in a grass catcher, this mower has the option of recirculating the clippings back to the lawn. Refer to Figure 10.

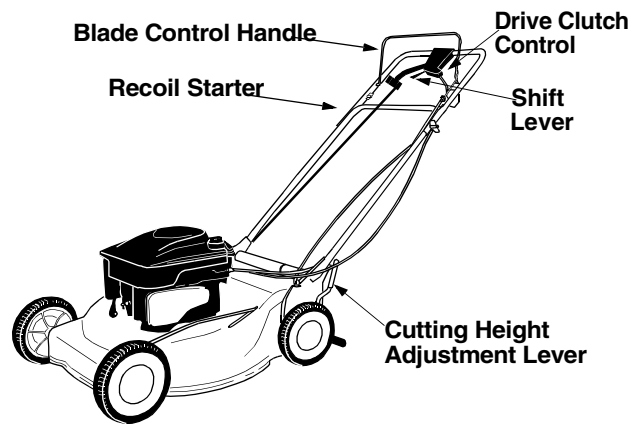


Figure 7

Engine Controls

See the separate engine manual for the location and function of the controls on the engine.

Stopping Engine

- Release blade control handle to stop the engine and the blade.
- Disconnect spark plug wire and ground it to the post on the engine.

SECTION 5: OPERATING YOUR LAWN MOWER



WARNING: Keep hands and feet away from chute area on the cutting deck. The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields.

NOTE: For shipping purposes your mower is set with the wheels in a low cutting height position. For best results raise the cutting position until it is determine which height is best for your lawn. See the adjustment section for details.

Gas and Oil Fill-Up

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your mower. Read instructions carefully.



Never fill fuel tank indoors with engine running or until the engine has been allowed to cool for at least two minutes after running.

Before Starting Your Mower

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug wire is fastened securely over the metal tip on the spark plug.
- Check for proper drive clutch operation using the NEUTRAL ADJUSTMENT TEST.

Neutral Adjustment Test

To perform the neutral adjustment test answer the following questions.

- With the drive clutch control released, push mower forward and pull it backward. Does it move freely?
- Squeeze the drive clutch control and pull the mower backward. Do the rear wheels lock?
- Is the drive clutch control cable free of kinks or sharp bends?
- If you answered “yes” to all three questions, your mower passed the test and you can start your mower.
- If you answered “no” to any of the three questions, you will have to adjust the drive clutch control as instructed in the ADJUSTMENT SECTION.

Starting Engine

- Prime engine as instructed in the separate engine manual packed with your unit.
- Your lawn mower is equipped with a constant speed throttle, which is set at full throttle for best performance.
- Stand behind the mower and squeeze the blade control handle against the upper handle.
- Grasp recoil starter handle and pull rope out slowly until engine reaches the start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly. Pull rope with a rapid, continuous, full arm stroke. Keeping a firm grip on the starter handle, let the rope return to the starter slowly.

Using Your Lawn Mower

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage the lawn mower or the engine. Such objects could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator and others.

For best results, do not cut wet grass because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass, or wet grass may require a narrower cut.

For a healthier lawn, never cut off more than one-third of the total length of the grass. Your lawn should be cut in the fall as long as there is growth. This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of mowing or mulching.



WARNING: If you strike a foreign object, stop the engine. Remove wire from the spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

Mulching

For effective mulching, do not cut wet grass because it tends to stick to the underside of the deck, preventing proper mulching of grass clippings. New or thick grass may require a narrower cut. The ground speed should be adjusted to the condition of the lawn. If mowing has been delayed and the grass has been allowed to grow in excess of 4", mulching is not recommended. Mow using the grass bag to reduce the grass height to 3 1/4" maximum before mulching.

Attaching Grass Bag

To install the grass bag:

- Lift the rear discharge door and remove the mulching plug, if installed. See Figure 8
- Lift the rear discharge door and hang the grass bag on the mower.

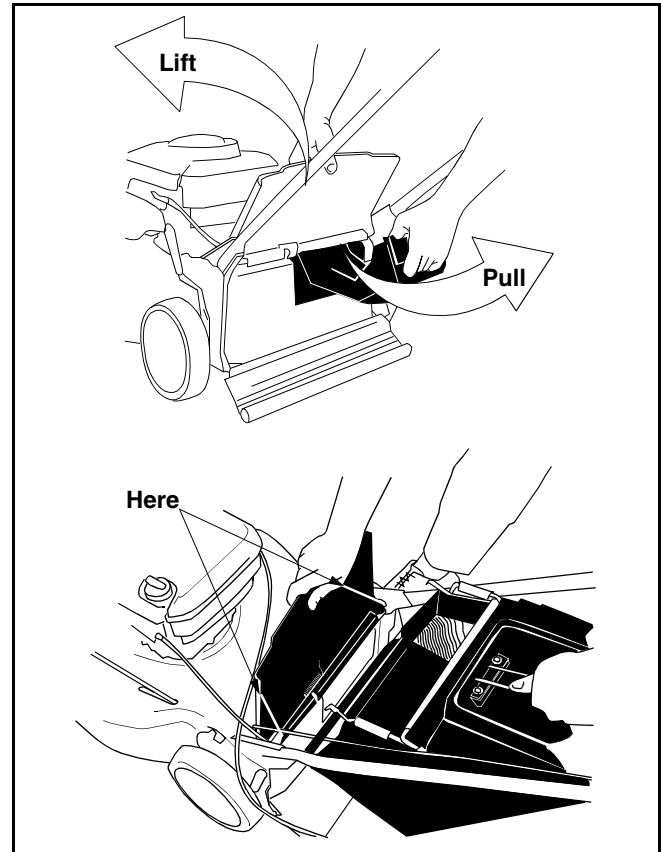


Figure 8

Emptying Grass Bag

- Release the blade control handle to shut off engine.
- Lift the rear discharge door and pull the bag away from the mower. See Figure 9.
- Lift the grass bag up and away from the mower. Dump the grass clippings.

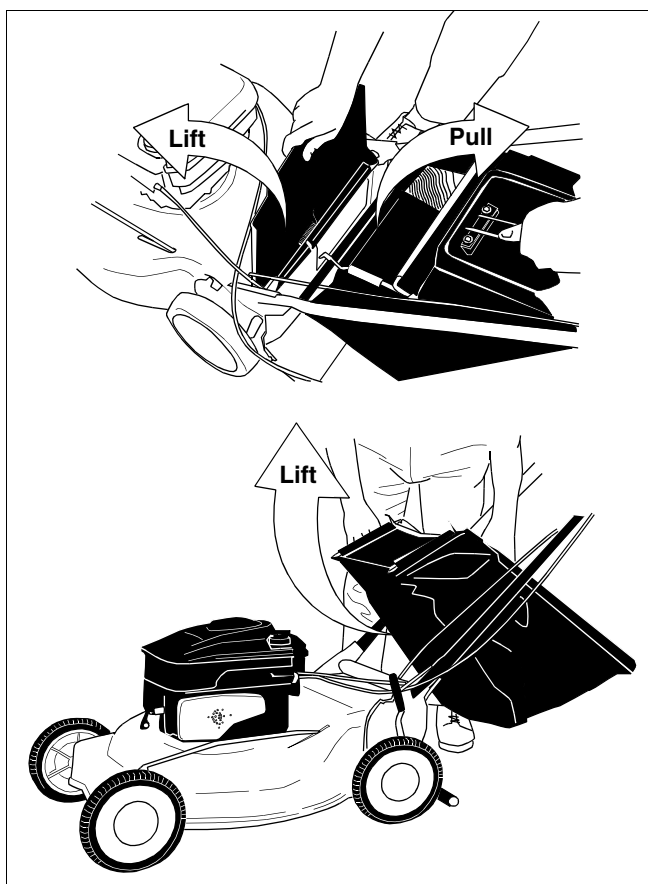


Figure 9

Attaching Mulching Plug

Follow the steps below to install the mulching plug:

- For the correct orientation when installing see Figure 10

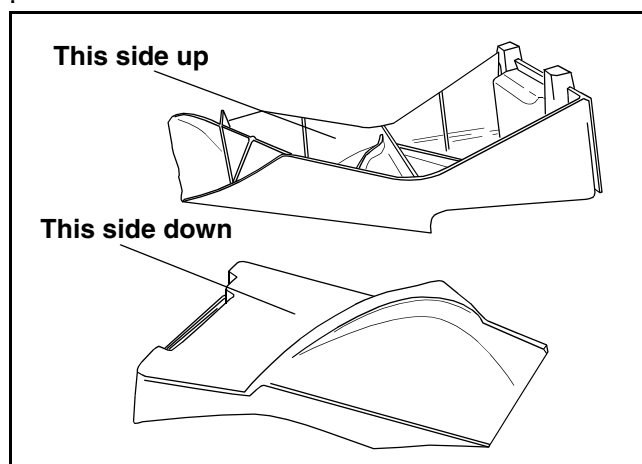


Figure 10

- Lift the rear discharge door and remove the grass bag, if installed. Insert the mulching plug. See Figure 11.

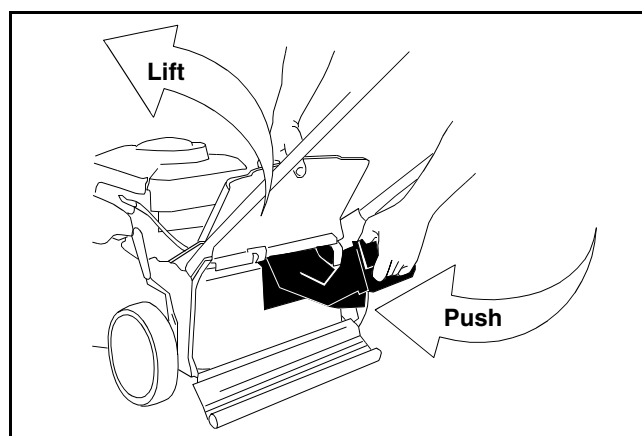


Figure 11

SECTION 6: MAKING ADJUSTMENTS



WARNING: Do not at any time make any adjustments without first stopping engine and disconnecting spark plug wire.

Engine Adjustments

See the separate engine manual packed with your unit for adjustments to the engine.

Cutting Height Adjustment Lever

The cutting height adjustment lever is located above the left rear wheel. To adjust the cutting height, pull the lever out and away from the mower and then move it forward or back for a new cutting height. See Figure 12.

NOTE: For rough or uneven lawns, move the height adjustment lever to a higher position. This will help prevent the scalping of grass.

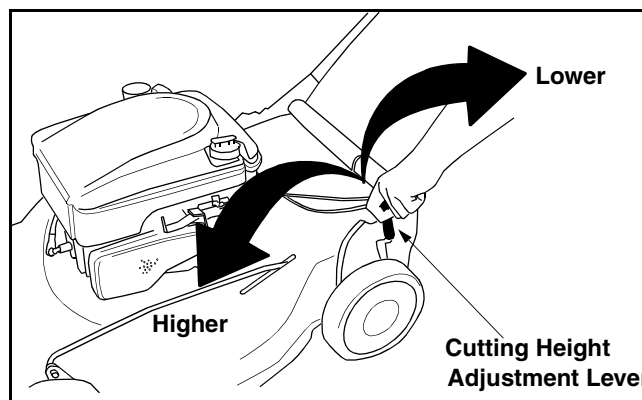


Figure 12

Handle Height Adjustment

Your mower is shipped with the handle in the higher height position. To lower the handle height, proceed as follows.

- Remove the starter rope from the rope guide.
- Remove the upper handle by removing the wing nuts and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cables.
- Remove the hairpin clips from the weld pins on the handle brackets and remove the wing nuts and carriage bolts from the upper hole on the handle mounting bracket. Press out on the legs of the lower handle and remove lower handle from the mower.
- Turn lower handle around so the notch on the bottom of the lower handle is facing forward. See Figure 13.
- Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.
- Place the hairpin clips in the inner holes in the weld pins and insert the carriage bolts the upper hole on the handle mounting bracket and secure with plastic wing nuts.
- Reassemble the upper handle to the lower handle.
- Attach the starter rope as instructed in the Assembly Section.

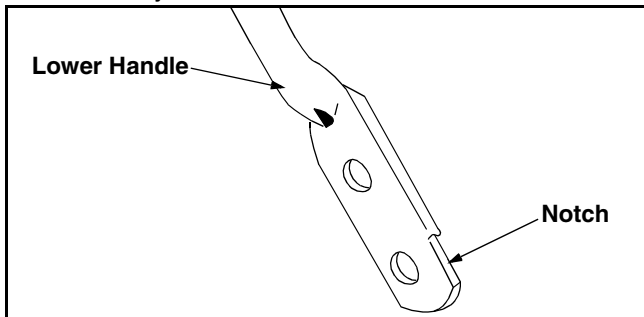


Figure 13

Drive Clutch Control

The adjustment wheel is located in the drive clutch control handle housing and is used to tighten or loosen the drive belt. You will have to adjust the drive clutch control if any of the following happens:

- The mower does not propel itself with the drive clutch engaged.
- The mower's drive wheels hesitate with the drive clutch engaged.

To resolve the above problems, rotate the adjustment wheel with your fingers. Clockwise to tighten the cable and counter-clockwise to loosen the cable.

See Figure 14

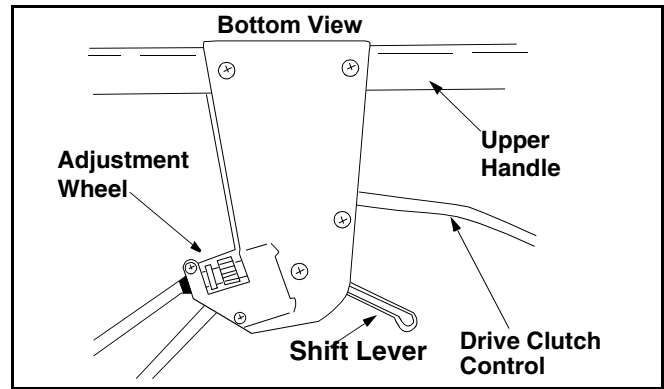


Figure 14

NOTE: For some people the drive clutch control may not be in a comfortable position. You can adjust the handle out by tightening the adjustment wheel.

Shift Lever Cable

Periodic adjustment of the six speed shift cable may be necessary due to normal wear on the cable. Adjustment is needed if all six speeds do not work.

The adjustable cable bracket is located on the left side of the mower beside the engine. See Figure 15

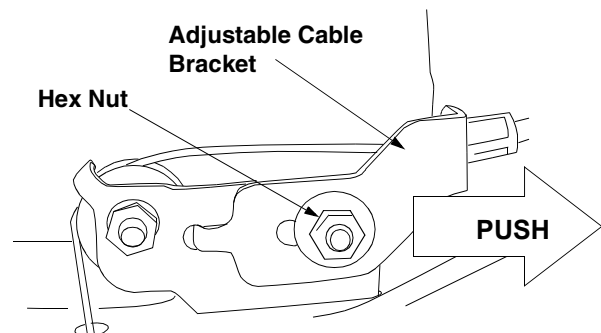


Figure 15

- Start engine and place shift lever in the sixth speed position. See Figure 14.
- Stop the engine and disconnect spark plug wire and ground it against engine.
- Loosen hex nut which secures the adjustable cable bracket. See Figure 15.
- Push back on the adjustable cable bracket and tighten hex nut.

SECTION 7: MAINTAINING YOUR LAWN MOWER

Customer Responsibilities

MAINTENANCE SCHEDULE		After each use	Every 25 hours	Every 50 hours	Every 100 hours	Once a season	Before storage	SERVICE DATES				
PRODUCT	Lubricate Wheels					✓						
	Lubricate Blade Control					✓						
	Clean Deck	✓					✓					
	Blade Care		✓				✓					
ENGINE	Check Oil	✓										
	Change Oil		✓				✓					
	Replace Air Filter				✓							
	Clean Engine	✓					✓					
	Check Spark Plug			✓		✓						
	Check Spark Arrestor (if any)			✓								

General Recommendations

- Always observe safety rules when performing any maintenance.
- Changing of the engine's governed speed will void the engine's warranty.
- The warranty on this lawn mower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, the operator must maintain the lawn mower as instructed in this manual.
- Some adjustments will have to be made periodically to maintain your unit properly. All adjustments in the Adjustment Section of this manual should be checked at least once each season.
- Periodically check all fasteners and make sure these are tight.
- Follow the maintenance schedule under Customer Responsibilities to get quality performance from your lawn mower.



WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of service work on the lawn mower.

Lubrication

Blade Control Handle: Lubricate the pivot points on the blade control handle and the drive clutch control at least once a season with light oil. These handles must operate freely in both directions. See Figure 16.

Wheels: Lubricate the wheels at least once a season with light oil (or motor oil). If the wheels are removed for any reason, lubricate the surface of the axle bolt and inner surface of the wheel with light oil.

Rear Discharge Door: Lubricate the torsion spring and pivot point periodically with light oil to prevent any rust or binding.

Engine: Follow the separate engine manual packed with your unit for lubrication instructions.

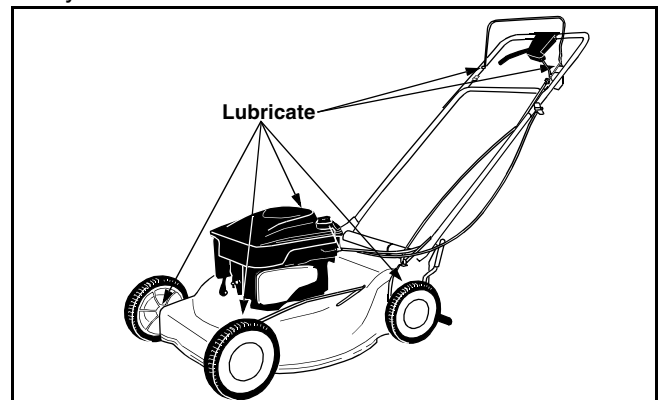


Figure 16

Maintenance

NOTE: When tipping the unit, empty the fuel tank and keep the air cleaner side of engine up. Never tip the mower more than 90 degrees and do not leave the mower tipped for any length of time. Oil can drain into the upper part of the engine causing a starting problem.

Engine

Refer to the separate engine manual for all engine maintenance instructions.

- Maintain engine oil as instructed in the separate engine manual packed with your unit.
- Service air cleaner every 25 hours under normal conditions. Poor engine performance and flooding usually indicate that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.
- The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season.
- Clean the engine regularly with a cloth or brush. Keep the cooling system (blower housing area) clean to permit proper air circulation which is essential to engine performance and life. Be certain to remove all grass, dirt, and combustible debris from muffler area.

Deck

The underside of the mower deck should be cleaned after each use to prevent a buildup of grass clippings, leaves, dirt, or other matter. If this debris is allowed to accumulate, it will invite rust and corrosion, and may prevent proper mulching, discharge, or bagging. The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected).

IMPORTANT: We do not recommend the use of a pressure washer or garden hose to clean your unit.

Cutting Blade Removal, Replacement, and Sharpening

- When removing the cutting blade for sharpening or replacement, protect your hands with a pair of heavy gloves or use a heavy rag to hold the blade.
- Remove the bolt and the blade bell support which hold the blade and the blade adapter to the engine crankshaft. See Figure 17.
- Remove the blade and the adapter from the crankshaft.



WARNING: Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

When sharpening the blade, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds. It may cause damage to the mower, and could break causing personal injury.

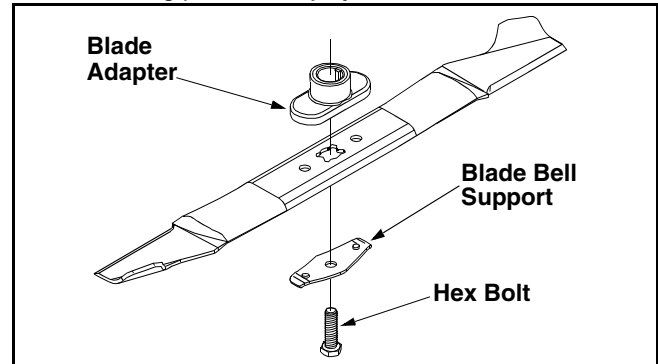


Figure 17

The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly. It is recommended that the blade always be removed from the adapter when testing for balance. Before reinstalling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil.

- Be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.
- Slide the blade adapter onto the engine crankshaft.
- Place the blade on the adapter. Be certain the blade is aligned and seated on the blade adapter flanges.
- Place blade bell support on blade. Make sure the notches on the blade bell support are aligned with small holes in the blade.
- Replace hex bolt and tighten to torque: 450 in. lbs. min., 600 in. lbs. max.

NOTE: To ensure safe operation of your mower, the blade bolt must be checked periodically for correct torque.

Drive Belt Removal And Replacement

If you need to replace a worn or broken drive belt, follow steps below.

- Disconnect the spark plug wire and ground it against the engine.
- Drain the fuel tank or place a piece of plastic beneath the cap to prevent gasoline leakage.
- Remove the rear hub caps, rear wheels and eight screws.
- Tip the mower back on its handle and block securely.

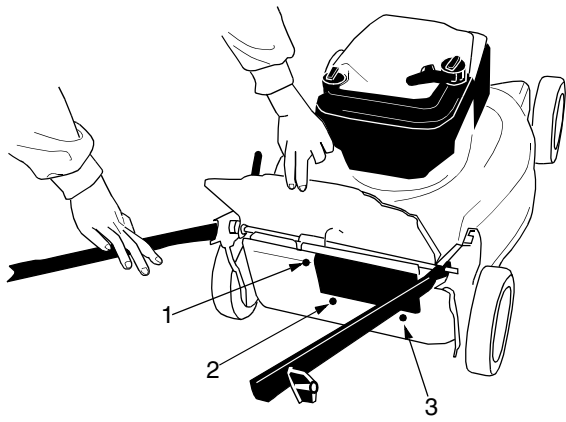


Figure 18

- Remove the blade, blade adapter and related hardware. See Figure 19.
- Remove the three hex head screws holding the small baffle and remove the small baffle. Remove the large baffle as well.

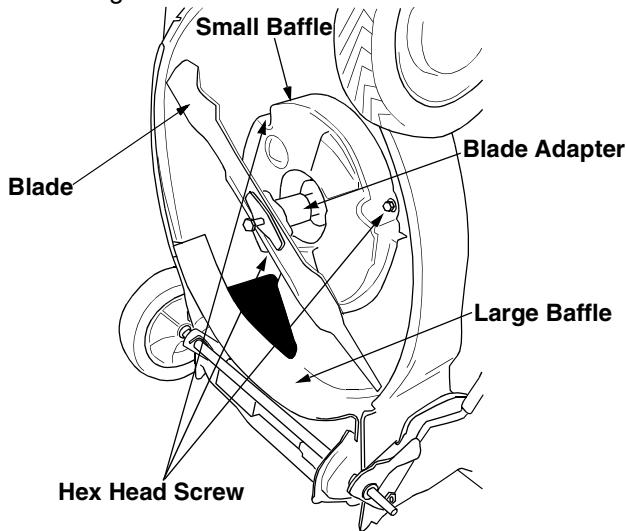


Figure 19

- Loosen the hex lock nut holding the idler bearing. Push back and rotate the belt keeper. See Figure 20.
- Using a pair of pliers, pull back and rotate belt keeper bracket from the slot on the idler pulley.
- Slide the belt out from between the belt keeper bracket and the idler pulley. See Figure 21.

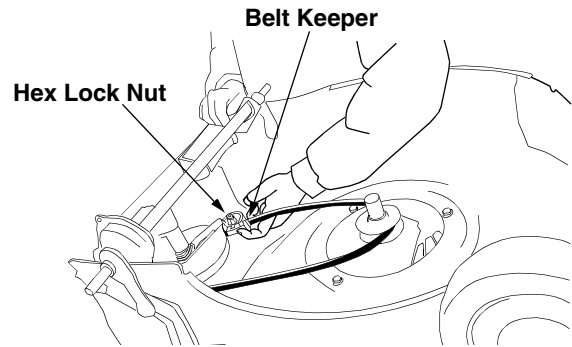


Figure 20

- Squeeze the belt together and push it forward, while pressing the control arm inward towards the deck and remove the six speed cable from the slot. See Figure 21.

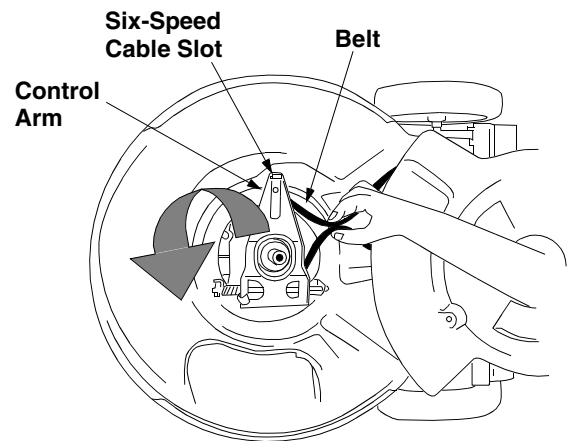


Figure 21

- Pivot the control arm down away from the pulley and belt.
- Lift off the lower pulley assembly and remove the old belt from around the crankshaft.
- Place the new belt over the transmission pulley. Start the belt in the pulley groove and rotate the pulley until the belt is seated in transmission pulley.
- Place the belt between the idler pulley and the belt keeper bracket.
- Using pliers, rotate the belt keeper bracket so that it snaps into slot on the idler bracket.
- Tighten the idler pulley bolt and lock nut half a turn.
- Place the belt between the two pulley halves on the crankshaft. Make sure to route the belt inside the belt guard pin. See Figure 22.

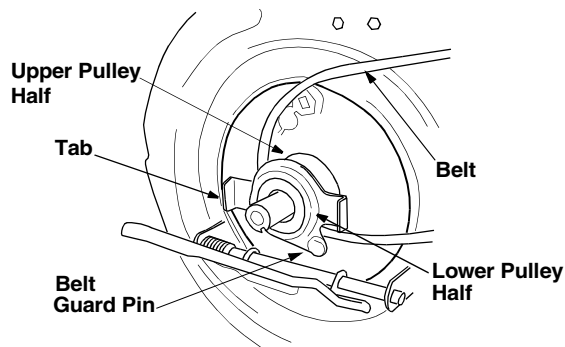


Figure 22

IMPORTANT: When replacing the belt, do not disassemble the lower pulley assembly.

- Pinch both sides of the belt together so that the belt is not in the pulley groove, and the lower pulley can be pushed towards the engine. See Figure 23
- .

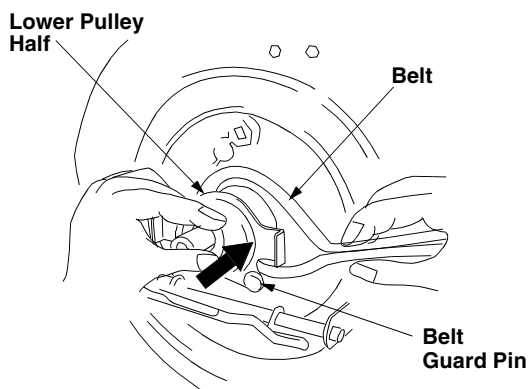


Figure 23

- Pivot the control arm back to its original position and reinstall the six-speed cable into the slot. See Figure 24.

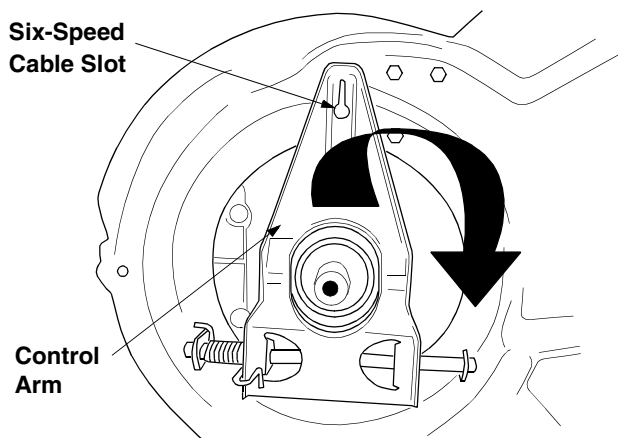


Figure 24

- Make sure the belt is routed inside the pulley halves and the belt guard pin.

NOTE: Mower is shown tipped on engine for clarity. Remember, only tip mower back on its handle with the spark plug facing up. Otherwise, oil will spill if turned upside down.

- Replace the large baffle. Refer to Figure 19.
- Replace small baffle and three hex head screws holding it in place.
- Replace the blade adapter and blade. See the *Blade Replacement and Sharpening* section for proper assembly.
- Replace the eight phillips head screws that hold the large baffle in place. Refer to Figure 18.
- Replace the rear wheels, rear wheel gears, and hub caps. The gear needs to be put on in the right way for the self propelled mechanism to work. Check the installation of the gear by spinning the wheel. It should spin freely in one direction but not the other. If the wheel spins freely in both directions, flip the gear over.
- Tip the mower back onto its wheels
- Go through the neutral adjustment test in the *Operating your Lawn Mower* section of the manual.

Storing your Lawn Mower

The following steps should be taken to prepare your lawn mower for storage.

- Clean and lubricate mower thoroughly as described in the lubrication instructions.
- Refer to engine manual for correct engine storage instructions.
- Coat mower's cutting blade with chassis grease to prevent rusting.
- Store mower in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

NOTE: When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts.

SECTION 8: TROUBLE SHOOTING GUIDE

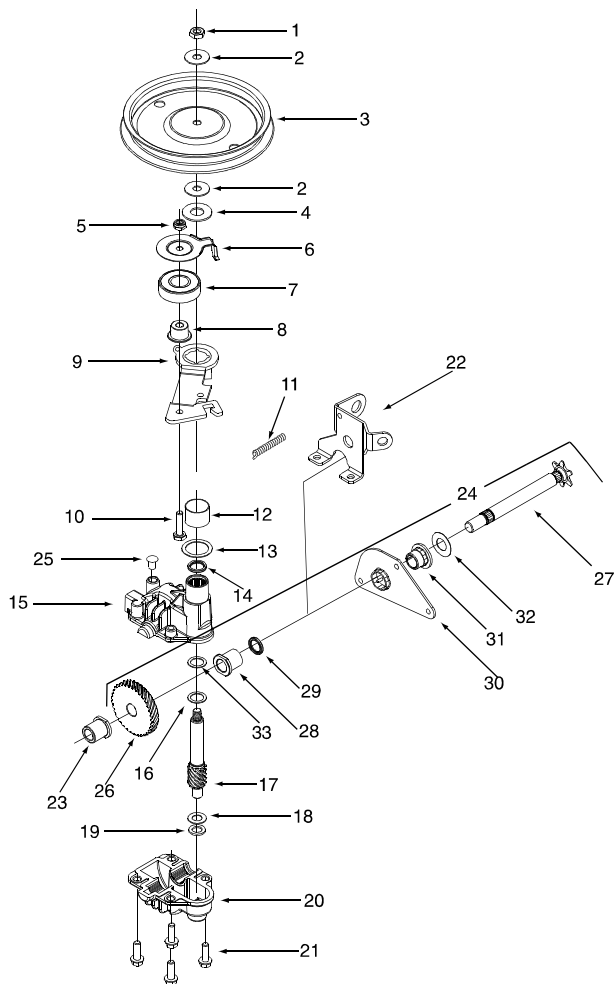
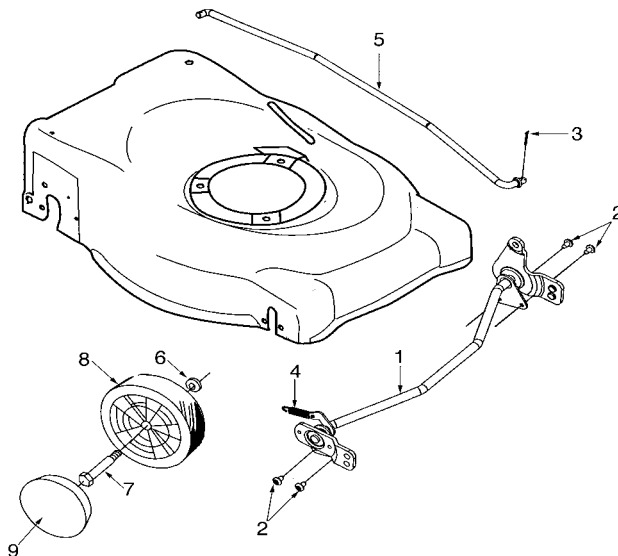
Problem	Cause	Remedy
Engine fails to start	1. Blade control handle disengaged. 2. Spark plug wire disconnected. 3. Fuel tank empty or stale fuel. 4. Blocked fuel line. 5. Faulty spark plug. 6. Engine flooded	1. Engage blade control handle. 2. Connect wire to spark plug. 3. Fill tank with clean, fresh gasoline. 4. Clean fuel line. 5. Clean, adjust gap, or replace. 6. Wait a few minutes to start engine.
Engine runs erratic	1. Spark plug wire loose. 2. Blocked fuel line or stale fuel. 3. Vent in gas plugged. 4. Water or dirt in fuel system. 5. Dirty air cleaner. 6. Carburetor out of adjustment.	1. Connect and tighten spark plug wire. 2. Clean fuel line; fill tank with clean, fresh gasoline 3. Clear vent. 4. Drain fuel tank. Refill with fresh fuel. 5. Clean air cleaner. 6. Adjust carburetor.
Engine overheats	1. Engine oil level low. 2. Air flow restricted. 3. Carburetor not adjusted properly.	1. Fill crankcase with proper oil. 2. Remove blower housing and clean. 3. Adjust carburetor.
Occasional skip (hesitates) at high speed	1. Spark plug gap too close.	1. Adjust gap to .030".
Idles poorly	1. Spark plug fouled, faulty or gap too wide. 2. Carburetor improperly adjusted. 3. Dirty air cleaner.	1. Reset gap to .030" or replace spark plug. 2. Adjust carburetor. 3. Clean air cleaner.
Excessive vibration	1. Cutting blade loose or unbalanced. 2. Bent cutting blade.	1. Tighten blade and adapter. Balance blade. 2. Replace blade.
Mower will not mulch grass	1. Wet grass. 2. Excessively high grass. 3. Dull blade.	1. Do not mow when grass is wet; wait until later to cut. 2. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting path. 3. Sharpen or replace blade.
Uneven cut	1. Wheels not positioned correctly. 2. Dull blade.	1. Place all four wheels in same height position. 2. Sharpen or replace blade.
Wheels will not propel	1. Belt not installed properly. 2. Debris clogging drive operation.	1. Check belt for proper pulley installation and movement. 2. Clean out debris with engine off.

NOTES

Model 387

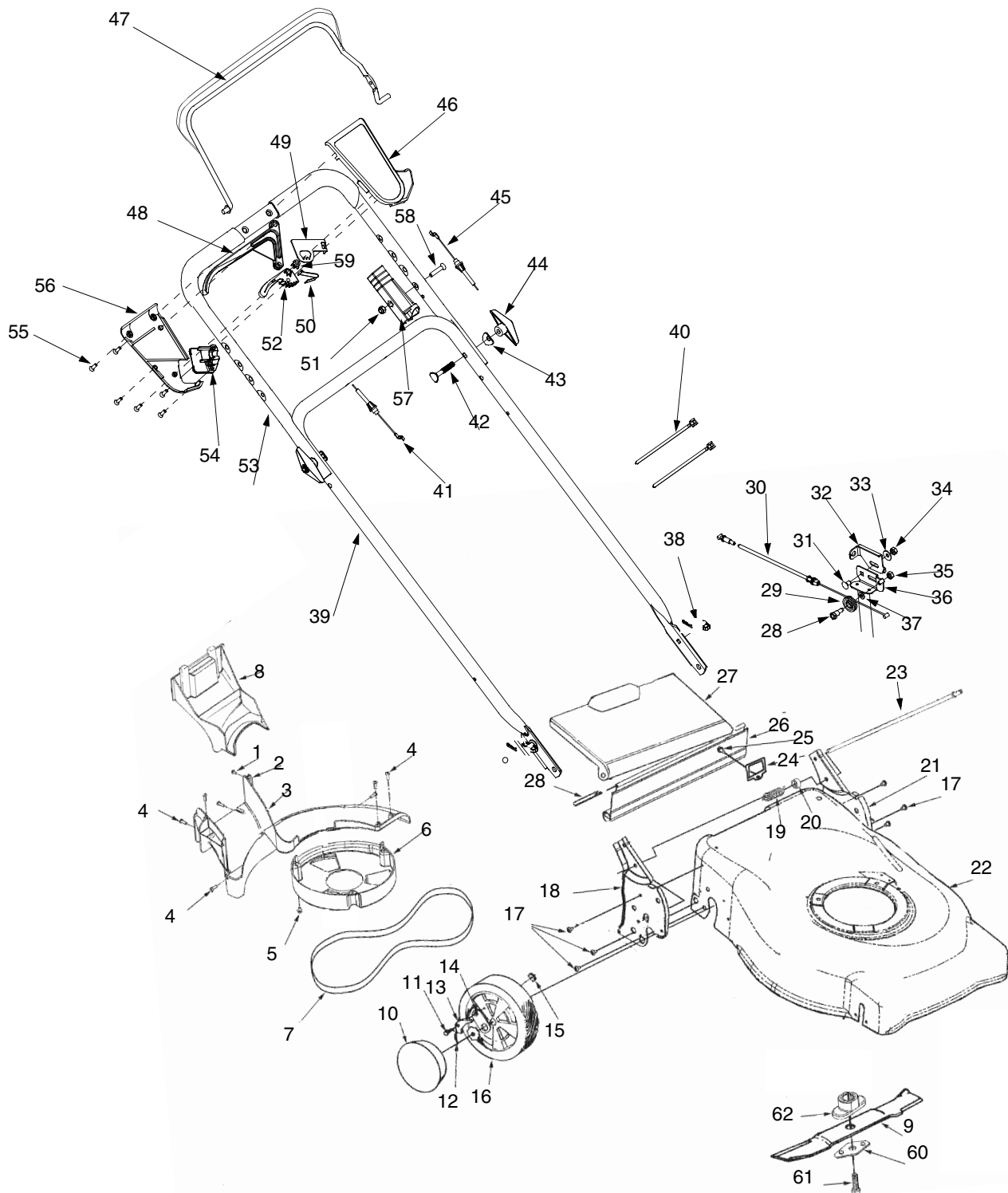
Front Axle Assembly & Height Adjuster

Ref. No.	Part No.	Description
1.	611-0060	Axle Ass'y, Frt.
2.	710-1348	AB Pan Scr. 1/4-14 x .50 Lg.
3.	714-0104	Cotter Pin .072 x 1.12 Lg.
4.	732-0820	Ext. Spring
5.	747-0920A	Adj. Rod
6.	736-0105	Spr. Washer
7.	738-0102	Shl. Bolt.498 x 1.445 3/8-16
8.	734-2014A	Wheel Ass'y - Complete
9.	731-0982A	Hub Cap



Ref. No.	Part No.	Description
1.	712-3025	Hx. Jam Nut 5/16-24
2.	736-0425	Bell Wash. .325 x .930 x .045
3.	756-0656	Pulley
4.	736-3084	Fl. Wash. .510 x 1.120 x .060
5.	712-0896	Hx. Jam Nut 1/4-28
6.	782-7598	Belt Keeper
7.	741-0600	Bearing
8.	750-1050	Flange Spacer
9.	682-0027A	Idler Bracket Ass'y.
10.	710-0299	Hx. Cap Scr. 1/4-28 x 1.00 Gr. 5
11.	732-0849A	Torsion Spring
12.	741-0682A	Bearing Sleeve
13.	736-0570	Fl. Wash. .885 x 1.145 x .030
14.	721-0329	Oil Seal
15.	618-0253	Upper Housing Ass'y.
16.	736-0616	Fl. Wash. .504 x .700 x .030
17.	717-1487	Pinion Shaft 10 T.
18.	736-0314	Thr. Wash. 3/8 x .70 x .030
19.	736-0569	Thr. Wash. .388 x .625 x .062
20.	618-0252	Lower Housing Ass'y.
21.	710-0642	Hx. Scr. 1/2-20 x .75
22.	782-7601A	Cable Bracket
23.	741-0674	Bearing
24.	611-0066	Shaft Ass'y.
25.	721-0325	Plug
26.	717-1469	Gear 34 T.
27.	711-1168	Output Shaft 6 T.
28.	741-0673	Flange Bearing
29.	721-0329	Oil Seal
30.	782-7595	Pivot Bracket
31.	741-0324	Flange Bearing
32.	736-0369	Wash. Fl. .508 I.D. x 1.00 O.D. x .020
33.	741-0690	Thrust Bearing
-	618-0263A	Transmission Complete

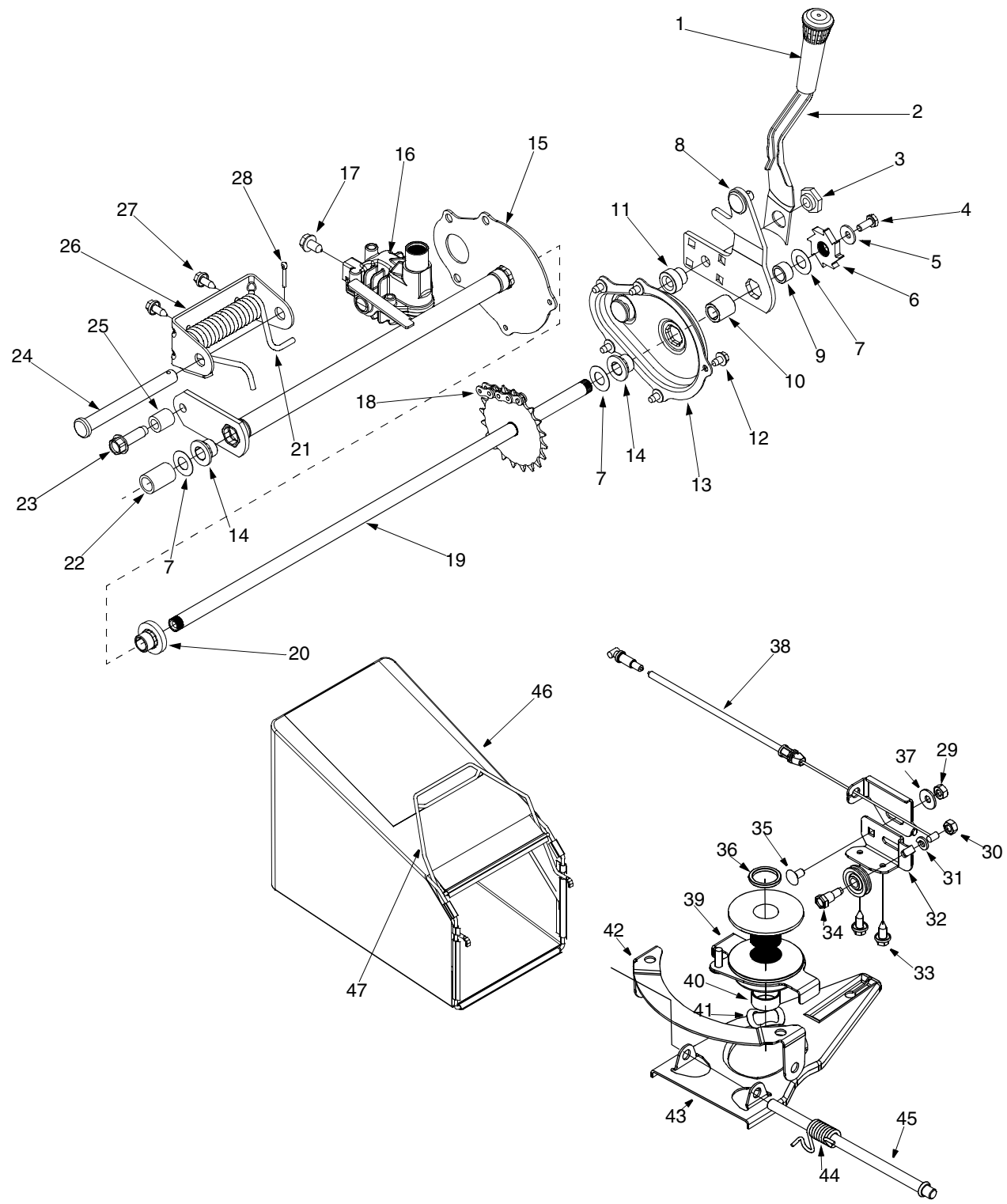
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Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1.	710-0351	Screw Mach. B Tapp	32.	782-7574A	Cable Adjustment Bracket
2.	712-0400	U-Nut	33.	736-0270	Bell Washer .265 ID x .75 OD
3.	731-1639	Baffle	34.	712-0287	Hex Nut 1/4-28
4.	710-1220	Screw HL 12-24	35.	712-0138	Hex Nut 1/4-20
5.	710-0653	Screw Tap 1/4-20	36.	782-7575A	Cable Bracket
6.	731-1714A	Belt Cover	37.	738-0924	Screw 1/4-20 x .375
7.	754-0271	Belt	38.	712-0104	Cotter Pin
8.	731-1685	Mulch Plug	39.	749-0907B	Lower Handle
9.	742-0741	21" Mulching Blade w/Star	40.	726-0240	Cable Tie
10.	731-0982A	Hub Cap	41.	746-0713	Drive Cable
11.	738-0137A	Shldr. Scr. .340x.285	42.	710-1174	Cr.Hd. Bolt 5 / 16-18 x 2" Lg.
12.	10622B	Spring, Ratchet	43.	736-0451	Saddle Washer .320 ID x .830 OD
13.	748-0188B	Pawl L.H. (Not Shown)	44.	720-0284	Wing Nut
	748-0381	Pawl R.H.	45.	746-0552	Control Cable-45"
14.	16855	Pawl Plate	46.	731-0904A	Upper Control Handle
15.	712-0414	Weld Top L. 1/4-20	47.	647-04008	Control Handle Ass'y
16.	734-2015A	Wheel Assembly	48.	731-0620	Control Lever
17.	710-1348	Screw AB 1/4-20	49.	16864	6-Speed Rack Cable Bracket
18.	782-3030	Handle Brkt. Ass'y - R.H.	50.	732-0627	Shift Lever Spring
19.	732-0809	Torsion Spring L.H.	51.	712-0324	Top Lock Nut
20.	750-1068	Spacer .385 I.D.	52.	731-0924	6-Speed Shift Lever
21.	782-3029	Handle Brkt. Ass'y - L.H.	53.	749-0439D	Upper Handle
22.	682-0075	21" Deck	54.	731-0906	Cable Mounting Cap
23.	747-0922	Pivot Rod	55.	710-1667A	C-Sunk Tap Screw #10-x.75 Lg
24.	782-7018	Pulley Cover	56.	731-0905A	Lower Control Housing
25.	710-0896	Hex Washer Screw 1/4-20 x .625	57.	746-0883	Control Housing
26.	731-1236	Rear Flap 17.77 Lg.	58.	710-1270	Oval C Sunk Screw
27.	782-7599B	Rear Chute Door	59.	713-0397	Gear Insert
28.	732-0700	Wire-47" Lg.	60.	736-0524A	Blade Bell Support
29.	756-0625	Roller Cable	61.	710-1257	Hex Bolt 3/8-24 x 2.5 Lg.
30.	746-0939	6-Speed Cable	62.	753-0609	Blade Adaptor Kit w/Star
31.	710-0167	Carriage Screw 1/4-20 x .50			

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Ref. No.	Part No.	Part Description	Ref. No.	Part No.	Part Description
1.	720-0223	Grip	25.	750-0807	Spacer .385 ID x .624 OD
2.	732-0803A	Spring Lever	26.	782-0568	Hgt Adjustment Spring Bracket
3.	738-0529	Shoulder Nut .825 x .165 Lg.	27.	710-1652	Screw 1/4-14 x .825
4.	710-0751	Cap Screw 1/4-20 x .620	28.	714-0474	Cotter Pin
5.	736-0270	Bell Washer .285 ID x .75 OD	29.	712-3006	Hex Nut 1/4-20
6.	748-0318	Wheel Ratchet	30.	712-0138	Hex Nut 1/4-28
7.	736-0369	Flat Washer .508 ID x 1.0 OD	31.	736-0329	Lock washer 1/4
8.	682-0531	Pivot Arm Assembly	32.	782-7575A	Cable Bracket MT
9.	750-0515	Spacer .510 ID x .70 OD	33.	710-0896	Screw Hex Washer 1/4-20 x .625
10.	741-0978	Sleeve Bearing .504 ID x .830 OD	34.	738-0924	Screw 1/4-20 x .375
11.	750-1056	Shoulder	35.	710-0167	Screw 1/4-20 x .625
12.	710-0653	Tap Screw 1/4-20 x .375	36.	750-1071	Spacer Sleeve 88ID x 1.13 x .12
13.	682-7528	Chain Cover Assembly	37.	736-0270	Bell Washer .265 x .75 x .062
14.	741-0324	Flange Bearing .506 ID x .590 Lg	38.	746-0939	Cable - 6-Speed (53")
15.	682-7526	Transmission Axle Assembly	39.	656-0613	Pulley Assembly Complete
16.	618-0263A	Transmission Assembly Complete	40.	750-1070	Spacer Sleeve 88 ID x 1.00 x .48
17.	710-0604A	Hex Screw 5/16-18	41.	736-0526	Wave Washer 1.38 OD x .88 ID .029
18.	713-0453	Chain	42.	782-7597	Pivot Bracket 6-Speed
19.	638-0012	Rear Axle Assembly	43.	782-7574A	Bracket Adjustment 6-Speed
20.	741-0522	Flange Bearing .506 ID x .715 Lg	44.	732-0807	Torsion Spring
21.	732-0832	Torsion Spring	45.	711-1114	Shaft Pivot 3/8OD x 7.75 LG
22.	750-0151	Spacer .550 ID x .750 OD	46.	664-04002	Grassbag - Black
23.	710-1315	Screw 3/8-16 x .25	47.	747-04003	Grassbag Frame
24.	711-0835	Clevis Pin .50 Dia x 4.82 Lg.			

SECTION 9: KAWASAKI ENGINE

SAFETY AWARENESS



WARNING: Whenever you see the symbols shown on the left, heed their instructions! Always follow safe operating and maintenance practices.

FORWARD

We wish to thank you for purchasing this Kawasaki engine. Please read this Owner's manual carefully before starting your new engine so that you will be thoroughly familiar with the proper operation of your engine's control, its features, capabilities and limitations. Also read the manual of the equipment to which this engine is attached. To ensure a long, trouble-free life for your engine, give it the proper care and maintenance described in this manual.

Always keep this manual at your fingertip so that you can refer to it whenever you need information. This manual should be considered a permanent part of the engine and should remain with the engine when it is sold. All rights reserved. No part of this publication may be reproduced without our prior written permission. This publication includes the latest information available at the time of printing. However, there may be minor differences between the actual product and illustrations and text in this manual. All products are subject to change without prior notice or obligation.

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READ THIS FIRST



WARNING:

Never allow children to operate the engine or equipment.

Keep people and pets out of area where you are using the engine or equipment.

Never wear loose, torn, or bulky clothing. It may catch on moving parts or controls, leading to the risk of accident.

Never consume alcohol or drug before or while operating this engine.

Do not run the engine in a closed area. Exhaust gas contains carbon monoxide, an odorless and deadly poison.

Gasoline is extremely flammable and can be explosive under certain condition.

Stop engine and allow the engine to cool before refueling.

Do not smoke. Make sure area is well ventilated and free from any source of flame or sparks including the pilot light of any appliance while refueling, servicing fuel system, draining gasoline and/or adjusting carburetor.

Do not fill the tank so the fuel level rises into the filler neck. If the tank is overfilled, heat may cause the fuel to expand and overflow through the vents in the tank cap.

Wipe off any spilled gasoline immediately.

To prevent fire hazard:

Keep the engine at least 1 m (3.3 ft.) away from buildings, obstructions and other burnable objects.

Do not place flammable objects close to the engine.

Do not expose combustible materials to the engine exhaust.

Do not use the engine on any forest covered, bush covered or grass covered unimproved land unless spark arrester is installed on the muffler.

To avoid getting an electric shock, do not touch spark plug, plug cap or spark plug lead during engine running.

To avoid a serious burn, do not touch a hot engine or muffler. The engine becomes hot during operation.

Before you service or remove parts, stop engine and allow the engine to cool.

Do not place hands or feet near moving or rotating parts.

Do not run engine at excessive speeds. This may result in injury.

Always remove the spark plug lead from spark plug when servicing the engine to prevent accidental starting.

EMISSION CONTROL INFORMATION

Fuel Information

THIS ENGINE IS CERTIFIED TO OPERATE ON UNLEADED REGULAR GRADE GASOLINE ONLY.

A minimum of 87 octane of the antiknock index is recommended. The antiknock index is posted on service station pumps in the U.S.A.

To protect the environment in which we all live, Kawasaki has incorporated an exhaust emission control system in compliance with applicable regulations of the United States Environmental Protection Agency and the California Air Resources Board. Also, depending on when your engine was produced, it may have an assigned emissions durability period. * See below for the engine emissions durability period that may apply to your engine.

Exhaust Emission Control System

The exhaust emission control system applied to this engine consists of a fuel system and an ignition system having optimum ignition timing characteristics. The fuel system has been calibrated to provide lean air/fuel mixture characteristics and optimum fuel economy with a suitable air cleaner and exhaust system

A sealed-type crankcase emission control system is also used to eliminate blow-by gasses. The blow-by gasses are led to a breather chamber through the crankcase and from there to the air cleaner.

Engine Emissions Compliance Period

California

Model Year - 2006 and later Vertical Crankshaft

Durability Period - 500 hours

All Other States

Model Year - 2003 and later (new)

2007 and later (carry over)

Durability Period - 500 hours (Category A)

If your engine has an assigned emissions durability period it will be located on the certification label attached to the engine (IMPORTANT ENGINE INFORMATION).

High Altitude Performance Adjustment Information

To improve the EMISSIONS CONTROL PERFORMANCE of engines operated above 1,000 meters (3,300 feet), Kawasaki recommends the following Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) approved modifications.

NOTE: *When properly performed, these specified modifications only are not considered to be emissions system "tampering" and engine performance is generally unchanged as a result.*

Installation Instructions:

High altitude adjustment requires replacement of carburetor main jet. Installation of these optional parts may be performed by an authorized Kawasaki dealer, or the consumer, following repair recommendations specified in the appropriate Kawasaki Service Bulletin.

Maintenance and Warranty

Proper maintenance is necessary to ensure that your engine will continue to have low emission levels. This Owner's Manual contains those maintenance recommendations for your engine. Those items identified by the Periodic Maintenance Chart are necessary to ensure compliance with the applicable standards.

As the owner of the engine, you have the responsibility to make sure that the recommended maintenance is carried out according to the instructions in this Owner's Manual at your own expense.

The Kawasaki Limited Emission Control System Warranty requires that you return your engine to an authorized Kawasaki dealer for remedy under warranty. Please read the warranty carefully, and keep it valid by complying with the owner's obligations it contains.

Tampering with Emission Control System Prohibited

Federal law and California State law prohibit the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new engine for the purposes of emission control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the engine after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

Do not tamper with the original emission related parts:

- Carburetor and internal parts
- Spark Plug
- Magneto or electronic ignition system
- Fuel filter element
- Air cleaner elements
- Crankcase
- Cylinder head
- Breather chamber and internal parts
- Intake pipe and tube

GENERAL INFORMATION

Location of Safety Related Labels

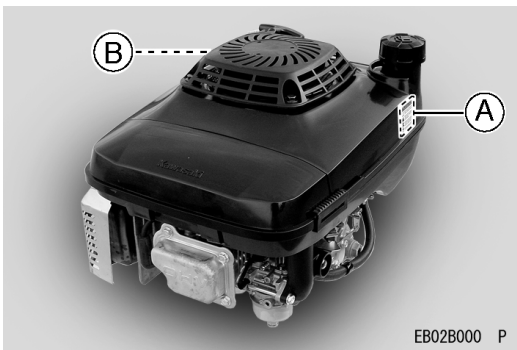


Figure 1

- a. Warning (Refer to)
- b. Engine Maintenance (Refer to Figure 3)

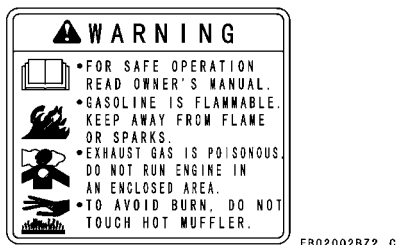


Figure 2



Figure 3

Engine Serial Number

The engine serial number is your only means of identifying your particular engine from others of the same model type. This engine serial number is needed by your dealer when ordering parts. Refer to figure 4.



Figure 4

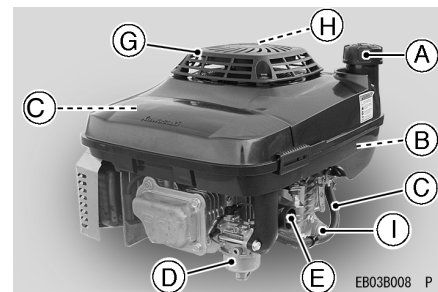


Figure 5

- A. Fuel Tank Cap
- B. Fuel Tank (capacity 2.0L [.0528US gal.])
- C. Fuel Tube
- D. Carburetor
- E. Priming Pump
- F. Air Cleaner
- G. Recoil starter
- H. Recoil Starter Grip
- I. Oil Drain Plugs (engine oil capacity 0.65L [0.69US gal.])

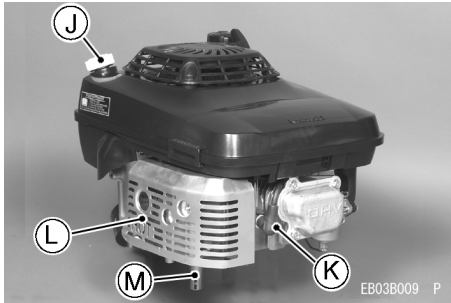


Figure 6

J. Oil Gauge / Filler Cap

K. Spark Plug Cap / Spark Plug

L. Muffler

M. P.T.O. Shaft

Tune-up Specifications

ITEM	SPECIFICATION
• Valve Clearance	• IN 0.12mm(0.005 in.) • EX 0.12mm{0.005 in.}
• Ignition Timing	• Unadjustable
• High Idle Speed	• 3200 r/min (rpm)
• Spark Plug Gap	• 0.7- 0.8mm(0.028-0.032 in.)
• Other Specifications	• NO OTHER ADJUSTMENT NEEDED

FUEL AND OIL RECOMMENDATIONS

Fuel

Use only clean, fresh, unleaded regular grade gasoline.

Octane Rating

The octane rating of a gasoline is a measure of its resistance to "knocking". Use a minimum of 87 octane of the antiknock index is recommended. The antiknock index is posted on service station pumps in the U.S.A.

NOTE: If "knocking or pinging" occurs, use a different brand of gasoline or higher octane rating.

CAUTION: Do not mix oil with gasoline

Oxygenated Fuel

Oxygenates (either ethanol or MTBE) are added to the gasoline. If you use the oxygenated fuel be sure it is unleaded and meets the minimum octane rating requirement. The following are the EPA approved percentages of fuel oxygenates.

ETHANOL: (Ethyl or Grain Alcohol)

You may use gasoline containing up to 10% ethanol by volume.

MTBE: (Methyl Tertiary Butyl Ether)

You may use gasoline containing up to 15% MTBE by volume.

METHANOL: (Methyl or Wood Alcohol) 5% by volume

You may use gasoline containing up to 5% methanol by volume, as long as it also contains co solvents and corrosion inhibitors to protect the fuel system.

Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of your fuel system.

WARNING: Gasoline is extremely flammable and can be explosive under certain conditions. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light. Never fill the tank so the fuel level rises into the filler neck. If the tank is overfilled, heat may cause the fuel to expand and overflow through the vents in the tank cap.

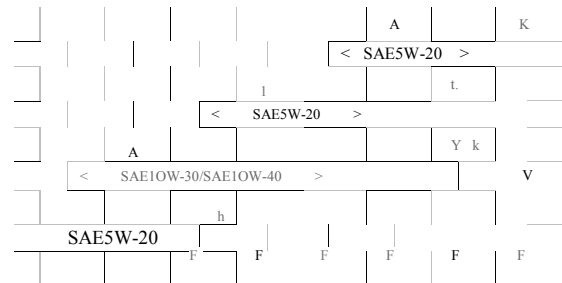
Engine Oil

The following engine oils are recommended:

API Service Classification: SF, SG, SH, or SJ.

Oil Viscosity

Choose the viscosity according to the temperature as follows:



PREPARATION

Fuel

- Level the engine (equipment) before fueling.
- Remove the fuel tank cap.
- Slowly pour fuel into the fuel tank to bottom (B) of the filler (A).

Do not over fill the fuel tank, fill only to bottom (B) of the filler (A) to prevent spill out of the fuel from the tank cap.

Fuel Tank Capacity, 2.0 L (0.528 us.gal)

- Close the tank cap securely by turning it clockwise as far as it will go.

Engine Oil

Check the engine oil level daily before starting the engine otherwise shortage of the engine oil may cause serious damage to the engine such as seizure.

- Place the engine (equipment) on level surface. Clean area around the oil gauge before removing it.
- Remove the oil gauge (A) and wipe it with clean cloth.
- Pour the oil slowly to "FULL" mark on the oil gauge.
- Insert the oil gauge into the oil filler (B) WITHOUT SCREWING IT IN.
- Remove the oil gauge to check the oil level. Level should be between "ADD" and "FULL" marks. Do not overfill.
- Install and tighten the oil gauge.

Engine Oil Capacity, 0.65 L (0.69 us.qt)

CAUTION: The engine is shipped without engine oil.

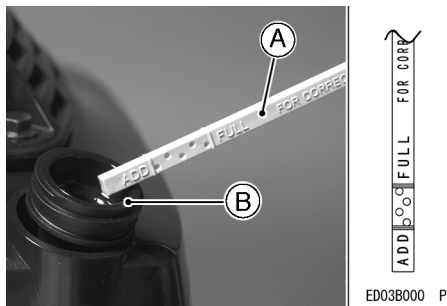


Figure 9

STARTING

Band Pad System

Upon releasing the brake control lever on the equipment, the cutting blade and the engine will stop automatically.

Therefore, the brake control lever must be held against the handle while the engine is started and running.

Starting Engine

- Fully push the priming button (A) by thumb only once.

NOTE: When the engine is already warm or on hot days, do not push the priming button to prevent faulty starting engine caused by flooding carburetor

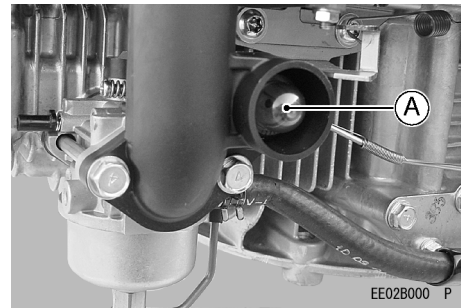


Figure 10

CAUTION: DO NOT start the engine when the cutting blade is in contact with long, uncut grass, it may cause difficulties in starting and damage to the recoil starter.

DO NOT attempt to start the engine when the brake control lever on the equipment is released from your hands; this may cause damage to the recoil starter or pad system of the engine.

DO NOT pull the recoil starter grip out of the end.

DO NOT let the recoil starter grip snap back itself. This may cause damage to the recoil starter assembly.

- Hold the brake control lever (A) on the equipment against the handle (B) on the equipment.
- Pull the recoil starter grip (C) slowly until you feel compression, then pull fast and steady.

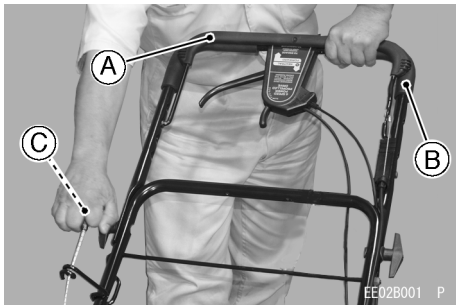


Figure 11

- A. Brake Control Lever
- B. Handle
- C. Recoil Starter Grip

Warming up

CAUTION: Allow engine to warm up before loading. This will allow oil to reach all the engine parts, and the piston clearance to reach design specification, before the engine is ready for loading.

- After engine starts, warm up the engine, run it for a few minutes.

OPERATING

Anti-engine inclination

- This engine will operate continuously at angles up to 30° in any direction.
- Refer to the operating instructions of the equipment this engine powers.

- Because of equipment design or application, there may be more stringent restrictions regarding the angle of operation.

CAUTION: Do not operate this engine continuously at angles exceeding 30° in any direction. Engine damage could result from insufficient lubrication.

STOPPING

STOPPING ENGINE

Release the brake control lever (A) on the equipment from the handle (B) on the equipment to stop the engine and the cutting blade.

- A. Brake Control Lever
- B. Handle

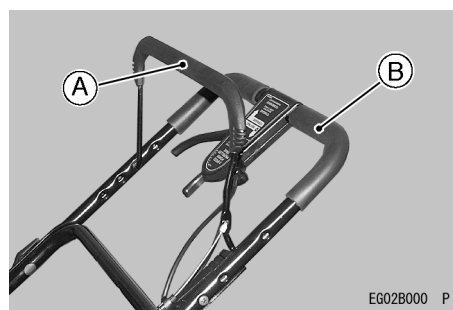


Figure 12

ADJUSTMENT

Engine Speed Adjustment

NOTE: Do not tamper with the governor setting or the carburetor setting to increase the engine speed. Each carburetor is adjusted at the factory with either a cap or stop plate installed on the mixture screw. Any adjustments must be performed by an authorized Kawasaki dealer.

MAINTENANCE

MAINTENANCE							
INTERVAL							
	DAILY	FIRST 8 HOURS	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 200 HOURS	EVERY 500 HOURS
Check oil level and add engine oil	•						
Check for loose or lost nuts and screws	•						
Check for fuel and oil leakage	•						
Check for brake control lever function	•						
Check or clean recoil starter and air intake screen Tighten nuts and screws	•		•				
♦ Clean air cleaner foam element		•	•		•		
♦ Clean air cleaner paper element		•			•		
Change engine oil		•		•			
Clean and re-gap spark Plug					•		
♦ Replace air cleaner paper element							•
♦ Clean dust and dirt from cylinder and cylinder head fins							•
♦ Clean combustion chamber							•
♦ Check and adjust valve clearance							•
♦ Clean and lap valve seating surface							•

NOTE: The service intervals indicated are to be used as a guide.

Service more frequently under dusty conditions. Service should be performed more frequently as necessary by operating condition.

»Service more frequently under dusty conditions.

‡: Have an authorized Kawasaki dealer perform these services.

Oil Level Check

Check oil level daily and before each time of operation. Be sure oil level is maintained. See PREPARATION .

Oil Change

WARNING: Hot engine oil can cause severe burns. Allow engine temperature to drop from hot to warm level before draining and handling oil.

Change oil after first 8 hours of operation. Thereafter change oil every 50 hours.

- Run the engine to warm oil.
- Be sure the engine (equipment) is level.
- Stop the engine.

- Remove the oil drain plug (A) on side of the engine or on bottom of the engine to drain oil into suitable container (B) while the engine is warm.

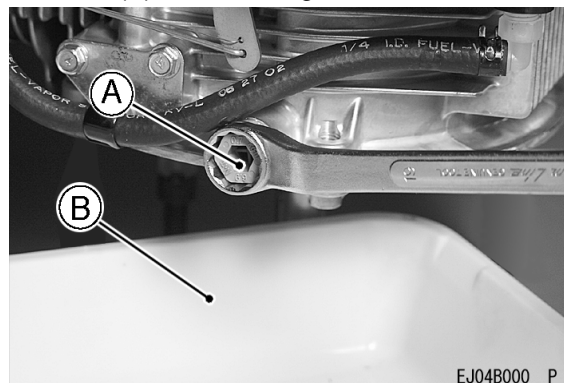


Figure 13

- A. Oil Drain Plug (On side of engine)
- B. Container

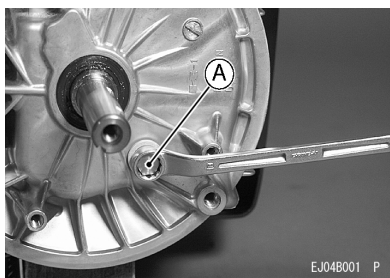


Figure 14

A. Oil Drain Plug (On bottom of engine)

- Reinstall the oil drain plug.
- Remove oil gauge and refill with new oil (See FUEL AND OIL RECOMMENDATIONS chapter).
- Check the oil level (See PREPARATION chapter).

WARNING: Engine oil is toxic substance. Dispose of used oil properly. Contact your local authorities for approved disposal methods for possible recycling.

Cooling System Cleaning

Before each use, check that the recoil starter (A) is free from grass and debris and clean to prevent engine overheating.

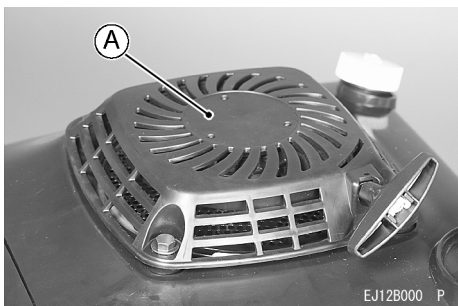


Figure 15

Air Cleaner Service

CAUTION: To prevent excessive engine wear, do not run the engine with the air cleaner

WARNING: Clean the elements in a well-ventilated area and take care that there are no sparks or flame anywhere near the working area, this includes any appliance with a pilot light. Do not use gasoline or low flash-point solvents to clean the element. A fire or explosion could result.

Unfasten the air cleaner case (C) fastened with the air cleaner body (D) by sliding the two fasteners (A) toward the recoil starter (B). Then, with two hands, pulling the two latches (E) toward you and upward as shown, separate the air cleaner case from the air cleaner body.

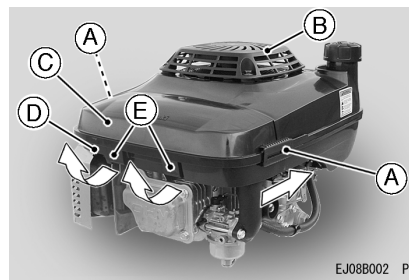


Figure 16

- A. Fasteners
- B. Recoil Starter
- C. Air Cleaner Case
- D. Air Cleaner body
- E. Latches

Remove the paper element (A) and the foam element (B) from the air cleaner body ((C)).

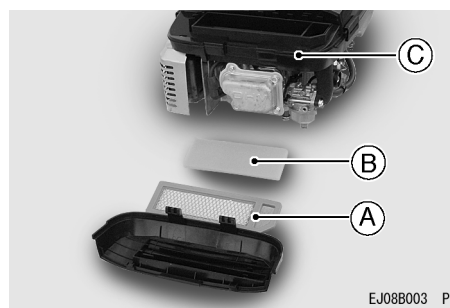


Figure 17

- A. Paper Element
- B. Foam Element
- C. Air Cleaner body

Foam Element

Clean the foam element every 25 hours.

Wash the element in detergent and water, and dry it thoroughly.

CAUTION: Do not oil foam element.

Paper Element

- Clean the paper element every 100 hours.
- Clean the element by tapping gently to remove dust. If very dirty, replace the element with a new one.
- Replace with a new paper-element yearly or 300 hours.

CAUTION: Do not wash paper-element. Do not use pressurized air to clean or dry paper element.

NOTE: Operating in a dusty condition may require more frequent maintenance than above.

- Reinstall the foam element and then the paper element on the air cleaner body.

- Reinstall the air cleaner case on the air cleaner body by first fitting the projection (B) on the edge of the air cleaner case into the slit (A) in the air cleaner body. Then, sliding the fasteners (C) toward the air cleaner case, securely fasten the air cleaner case with the air cleaner body.

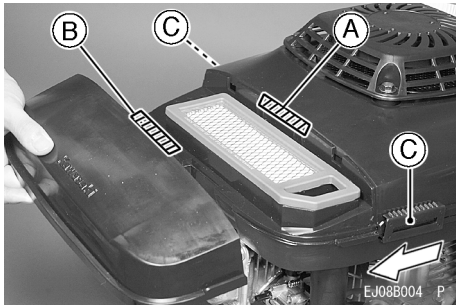


Figure 18

- A. Slit in the air cleaner body
- B. Projection on the air cleaner case
- C. Fasteners

CAUTION: After servicing the air cleaner, be sure all the removed parts are reinstalled properly in place. Failure to secure fastening of the air cleaner case with the air cleaner body may cause dirt or other foreign materials to enter the engine, while it is running, through the air cleaner, resulting in engine troubles or failures.



WARNING: Hot engine components can cause severe burns. Stop engine and allow it to cool before checking spark plug.

- Clean or replace the spark plug and reset gap (A) every 100 hours of operation.
- Disconnect the spark plug cap from spark plug and remove the spark plug.
- Clean the electrodes (B) by scraping or with a wire brush to remove carbon deposits.
- Inspect for cracked porcelain or other wear and damage. Replace the spark plug with a new one if necessary.
- Check the spark plug gap and reset it if necessary. The gap must be between 0.7 and 0.8 mm (0.028 and 0.032").

To change the gap, bend only the side-electrode, using a spark plug tool.

-Install and tighten the spark plug to 23 N-m (2.3kgf-m, 17fMb).

-Fit the spark plug cap on the spark plug securely.

-Pull up the spark plug cap lightly to make sure of the installation of the spark plug cap.

RECOMMENDED SPARK PLUG

NGK... BPR5ES

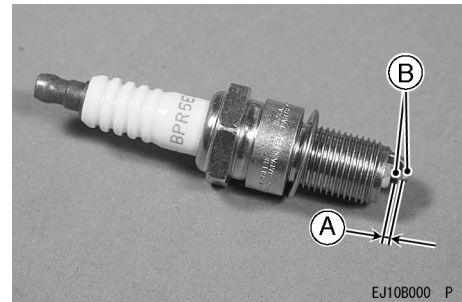


Figure 19

- A. Spark Plug Gap
- B. Electrodes

CAUTION: Be sure to use the same type of spark plug for change. Resistor spark plug is required in some areas by local law.

Storage

Engine to be stored over 30 days should be completely drained of fuel (gasoline) to prevent gum deposits forming on essential carburetor parts and the fuel system.



WARNING: Gasoline is extremely flammable and can be explosive under certain conditions. Drain gasoline before storing the equipment for extended periods. Drain gasoline in a well-ventilated area away from any source of flame or sparks, including any appliances with a pilot light. Store gasoline in an approved container in safe location.

- Remove the spark plug cap from spark plug to prevent accidental starting the engine.
- Empty the fuel from the fuel tank with a pump or siphon.
- Fit the plug cap on the spark plug securely
- Start and run the engine at idle speed to used up the fuel in the fuel system.



WARNING: Before maintaining engine, stop the engine and allow it cool.

- Remove the spark plug and pour approx. 1-2 mL (0.06-0.1 cu.in) of new engine oil through the plug hole (A), slowly pull the recoil starter grip several times and reinstall the spark plug.

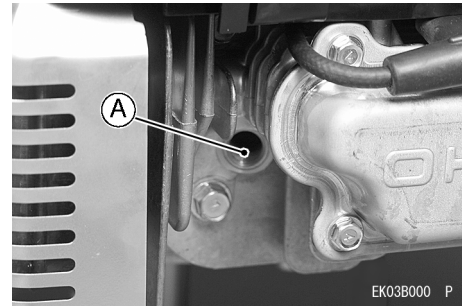


Figure 20

A. Spark Plug Hole

- Slowly pull the recoil starter grip until you feel compression and leave it there.
- Clean every part of the engine.
- After period of storage, change engine oil.
- (Refer to "Oil Change" section in "MAINTENANCE" section).
-

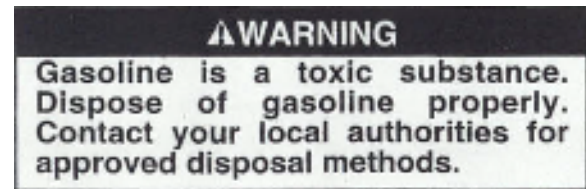


Figure 21

TROUBLESHOOTING GUIDE

Symptom		Probable Cause	Remedy
Engine won't start output is low	Insufficient compression	1. Faulty piston, cylinder, piston ring, and head gasket 2. Faulty valves 3. Loose spark plug 4. Loose cylinder head bolts	1. Tighten properly 2. Tighten properly 3. Tighten properly 4. Tighten properly
	No fuel to combustion chamber	1. No fuel in fuel tank 2. Blocked fuel tube 3. Blocked air vent in fuel tank cap 4. Faulty carburetor	1. Fill fuel tank 2. Clean 3. Clean 4. ‡
	Spark plug fouled by fuel	1. Over-rich fuel/air mixture 2. Clogged air cleaner 3. Faulty carburetor 4. Incorrect grade/type of fuel 5. Water in fuel	1. Slowly pull the recoil starter grip with spark plug removed to discharge excess fuel. clean spark plug 2. Clean 3. ‡ 4. Change Gasoline 5. Change Gasoline
	No spark or weak spark	1. Faulty spark plug 2. Faulty ignition coil 3. Faulty engine switch	1. Replace spark plug 2. ‡ 3. ‡
Low Output	Engine Overheats	1. Clogged air cleaner 2. Recoil Starter or cooling air path clogged with dirt 3. Insufficient engine oil 4. carbon built -up in combustion chamber 5. Poor ventilation around engine	1. Clean 2. Clean 3. Replenish or change oil 4. ‡ 5. Select a better location
	1. Engine speed won't increase	1. Faulty Governor	‡

If the engine malfunctions, carefully examine the symptoms and the operating conditions, and use the table above as a guide to troubleshooting. ‡ Have an authorized Kawasaki dealer perform these service

ENVIRONMENTAL PROTECTION

To protect our environment, properly discard used batteries, engine oil, gasoline, coolant, or other components that you might dispose of in the future.

Consult your authorized Kawasaki dealer or local environmental waste agency for their proper disposal procedure.

SPECIFICATIONS

Type of Engine	Air-cooled, 4-stroke OHV, single cylinder, gasoline Engine
• Bore X Stroke	• 65 x 54mm (2.6 x 2.1 in.)
• Displacement	• 179mL (109. cu.in.)
• Ignition system	• Solid-state ignition
• Starting system	• Recoil starter
• Dry weight	• 13.5kg (29.lb)

Specifications subject to change without notice

**KAWASAKI LIMITED WARRANTY
CALIFORNIA AND FEDERAL
EMISSION CONTROL SYSTEMS
SMALL OFF-ROAD ENGINES**

The California Air Resources Board, the Environmental Protection Agency (EPA), and Kawasaki Motors Corp., U.S.A. (hereinafter "Kawasaki") are pleased to explain the Emission Control Systems Warranty on your Kawasaki small off-road engine. In California and other states, new small off-road engines must be designed, built and equipped to meet stringent anti-smog standards. Kawasaki must warrant the emission control system on your small off-road engine for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine. Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission related assemblies. Where a warrantable condition exists, Kawasaki will repair your small off-road engine at no cost to you including diagnosis (if the diagnostic work is Performed at a Kawasaki small off-road engine dealer), parts and labor.

OWNERS WARRANTY RESPONSIBILITIES. The following obligations must be fulfilled by the owner to maintain the validity of the Kawasaki California / EPA Emissions Systems Warranty:

- (a) As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Kawasaki recommends that you retain all receipts covering maintenance on your small off-road engine, but Kawasaki cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- (b) You are responsible for presenting your small off-road engine to an authorized Kawasaki small off-road engine Dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.
- (c) AS the small off-road engine owner, you should also be aware that Kawasaki may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- (d) If you have any questions regarding your warranty rights and responsibilities, you should contact Kawasaki Motors Corp., U.S.A., Consumer Services Department, 5080 36th Street, S.E., Grand Rapids, MI 49512, 616/949-6500..

1. COVERAGE. Kawasaki warrants to the initial owner and each subsequent purchaser that the small off-road engine is free from defects in materials and workmanship which cause a failure of a warranted part for a period of two years. Kawasaki is liable for damages to other engine components caused by the failure of a warranted part still under warranty. The 1995 and later small off-road engines are warranted for two years in California. In all other states, 1997 and later model year small off-road engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by Kawasaki. This warranty time period shall begin on the date the small off-road engine is delivered to the initial purchaser, or on the date the small off-road engine is first placed in service.

Warranty defects shall be remedied during customary business hours at any authorized Kawasaki small off-road engine dealer located within the United States of America. Any manufacturer-approved replacement part may be used in the performance of any warranty maintenance or repairs on emission-related parts, and must be provided without charge to the owner if the part is still under warranty. Any part or parts replaced under this warranty shall become the property of Kawasaki.

The emission related warranted parts are specifically defined by the California Air Resources Board's Emission Warranty Parts List. (EPA's regulations do not include a parts list, but EPA considers emission-related parts to include all parts listed here.) These warranted parts are: carburetor and internal parts, spark advance/retard system, cold start enrichment system, magneto or electronic ignition system, catalytic converter, intake manifold, exhaust manifold, air cleaner element, and spark plugs if failure occurs prior to the first required scheduled replacement, hoses, clamps, fittings, gaskets, sealing devices, mounting hardware and tubing used directly in these parts.

Since emission related parts may vary slightly from model to model, certain models may not contain all of these parts and certain models may contain functionally equivalent parts.

2. LIMITATIONS. This Emission Control Systems Warranty shall not cover any of the following:

- (a) Repair or replacement required as a result of (i) misuse or neglect, (ii) lack of required maintenance, (iii) repairs improperly performed or replacements improperly installed, (iv) use of replacement parts or accessories not conforming to Kawasaki specifications which adversely affect performance and/or durability, (v) alterations or modifications not recommended or approved in writing by Kawasaki.
- (b) Replacement of parts and other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

LIMITED LIABILITY.

(a) The liability of Kawasaki under this Emission Control Systems Warranty is limited solely to the remedying of defects in materials or workmanship by any authorized Kawasaki small off-road engine dealer at its place of business during customary business hours. This warranty does not cover inconvenience or loss of use of the small off-road engine or transportation of the small off-road engine to or from the Kawasaki Dealer. KAWASAKI SHALL NOT BE LIABLE FOR ANY OTHER EXPENSE, LOSS OR DAMAGE, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL (EXCEPTION LISTED UNDER COVERAGE) OR EXEMPLARY ARISING IN CONNECTION WITH THE SALE OR USE OF OR INABILITY TO USE THE KAWASAKI SMALL OFF-ROAD ENGINE FOR ANY PURPOSE.

(b) NO EXPRESS EMISSION CONTROL SYSTEMS WARRANTY IS GIVEN BY KAWASAKI WITH RESPECT TO THE KAWASAKI SMALL OFF-ROAD ENGINE EXCEPT AS SPECIFICALLY SET FORTH HEREIN. ANY EMISSION CONTROL SYSTEMS WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE EMISSION CONTROL SYSTEMS WARRANTY TERMS SET FORTH HEREIN. THE FOREGOING STATEMENTS OF WARRANTY ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES.

(c) No dealer is authorized to modify this Kawasaki Limited Emission Control Systems Warranty.

(d) Kawasaki is not liable for parts which are not genuine Kawasaki parts except when genuine Kawasaki parts cause damage to non-Kawasaki parts.

LEGAL RIGHTS. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS.

THIS WARRANTY IS IN ADDITION TO THE KAWASAKI LIMITED SMALL OFF-ROAD ENGINE WARRANTY.

NOTES

MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by Cub Cadet LLC with respect to new merchandise purchased and used in the United States, its possessions and territories.

Cub Cadet LLC warrants this product against defects for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by Cub Cadet LLC for use with the product(s) covered by this manual will void your warranty as to any resulting damage.

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear parts or component failures will be covered on the product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear part failures will be covered ONLY IF caused by defects in materials or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to: batteries, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates, auger spiral rubber, and tires.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE, through your local authorized service dealer. To locate the dealer in your area, check your Yellow Pages, or contact Cub Cadet LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-877-282-8684, or log on to our Web site at www.cubcadet.com.

This limited warranty does not provide coverage in the following cases:

- a. The engine or component parts thereof. These items carry a separate manufacturer's warranty. Refer to applicable manufacturer's warranty for terms and conditions.
- b. Log splitter pumps, valves, and cylinders have a separate one year warranty.
- c. Routine maintenance items such as lubricants, filters, blade sharpening, tune-ups, brake adjustments, clutch adjustments, deck adjustments, and normal deterioration of the exterior finish due to use or exposure.

- d. Cub Cadet LLC does not extend any warranty for products sold or exported outside of the United States, its possessions and territories, except those sold through Cub Cadet LLC's authorized channels of export distribution.
- e. Parts that are not genuine Cub Cadet parts are not covered by this warranty.
- f. Service completed by someone other than an authorized service dealer is not covered by this warranty.
- g. Transportation charges and service calls are not covered.

No implied warranty, including any implied warranty of merchantability of fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind Cub Cadet LLC. During the period of the warranty, the exclusive remedy is repair or replacement of the product as set forth above.

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sale. Cub Cadet LLC shall not be liable for incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement lawn care services or for rental expenses to temporarily replace a warranted product.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. **Alteration of safety features of the product shall void this warranty.** You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser or to the person for whom it was purchased as a gift.

HOW STATE LAW RELATES TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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