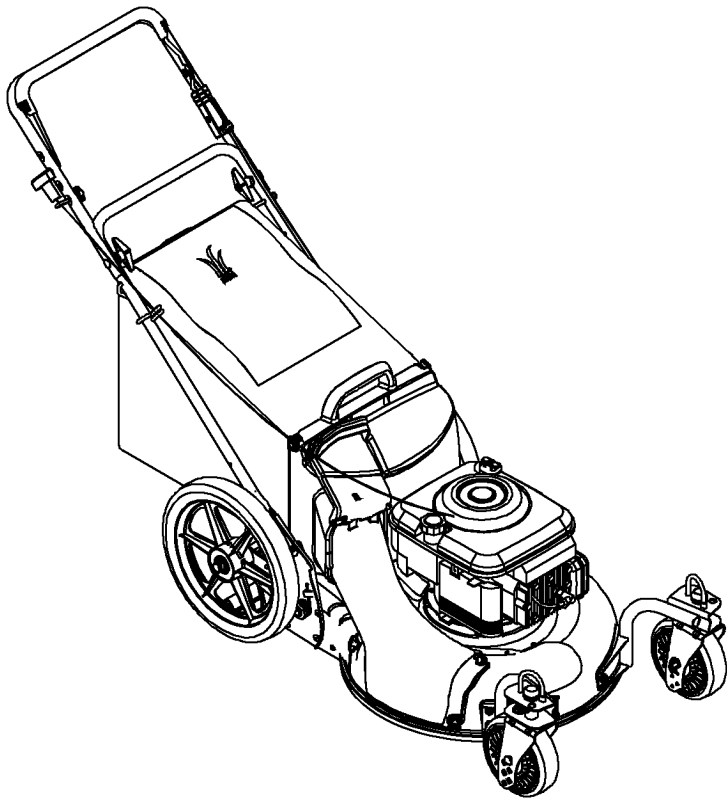




Operator's Manual



21" Mulching Push Mower

Model 247.385010
Factory No. 11A-596C402

IMPORTANT: Read safety rules and instructions carefully before operating equipment.

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 361131 Cleveland, Ohio 44136-0019.

MTD 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. This information is very important if you need help from our Customer Support Department or an authorized dealer.

- You can locate the model number by looking at the rear portion of the deck's surface. 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 Support Department.



Call 1- (330) 220-4MTD (4683) or 1- (800) 800-7310 to reach a Customer Support representative. Please have your unit's model number and serial number ready when you call. See previous section to locate this information. You will be asked to enter the serial number in order to process your call.

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

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



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 your lawn mower. Failure to comply with these instructions may result in personal injury. When you see this symbol, heed its warning.

DANGER: Your lawn mower 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 lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.



WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

GENERAL OPERATION

- 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.
- Your rotary mower 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.
- Never allow children under 14 years old to operate a power mower. Children 14 years old and over should only operate mower under close parental supervision. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your mower.
- Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower to help prevent blade contact or thrown object injury. Although the area of operation should be completely cleared of foreign objects, an object may have been overlooked and could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.
- 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. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, slippery or light weight (e.g. canvas) shoes.
- Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.
- 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 picked up and thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation.
- Do not put hands or feet near or under rotating parts. Keep clear of discharge opening at all times as the rotating blade can cause injury.
- Many injuries occur as a result of the mower being pulled over the foot during a fall. Do not hang on to the mower if you are falling; release the handle immediately.
- Never pull the mower toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind, 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.
- Do not operate the mower while under the influence of alcohol or drugs.
- Do not engage the self-propelled mechanism on units so equipped while starting engine.

- 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.
- Never operate the mower in wet grass. Always be sure of your footing to avoid serious injury.
- Keep a firm hold on the handle and walk, never run. If you feel you are losing your footing, **RELEASE THE BLADE CONTROL HANDLE IMMEDIATELY** and the blade will stop rotating within three seconds.
- Mow only in daylight or good artificial light. Stop blade when crossing gravel drives, walks or roads.
- If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- 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.
- Never operate mower without proper guards, grass catcher, plates or other safety protective devices in place.
- Muffler and engine become hot and can cause a burn. Do not touch.
- Only use accessories approved for this machine by the manufacturer.
- Read, understand, and follow all instructions provided with the approved accessory.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance. Telephone 1-800-800-7310 for the name of your nearest dealer.

Slope Operation

- 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 as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

Do:

- Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, hidden objects, or bumps. Tall grass can hide obstacles.

- 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 in less than 3 seconds.

Do not:

- Do not mow near drop-offs, ditches or embankments. The operator could lose footing or balance.
- Do not mow slopes greater than 15 degrees as shown on the slope gauge.
- Do not mow on wet grass. Reduced 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. Never assume that children will remain where you last saw them.
- Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- Be alert and turn mower off if a child enters the area.
- Before and while moving backwards, look behind and down for small children or other objects.
- Never allow children under age 14 to operate the mower. Children 14 years of age and above should read and understand the operation instructions and safety rules in this manual.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision of a child or hazard.

Service

- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved gasoline container.
- Never remove gas cap or add fuel while the engine is running. Allow engine to cool at least two minutes before refueling.
- Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel machine indoors because flammable vapors will accumulate in the area.
- Never store the machine or fuel container inside where there is an open flame or spark such as a gas water heater, space heater, or furnace.
- Never run an engine inside a closed area.

- To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow mower to cool at least 5 minutes before storing.
- Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked or worn). Replace with blade which meets original equipment specifications listed in this manual.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly.
- After striking a foreign object, stop the engine, remove the wire from the spark plug, and thoroughly inspect the mower for any damage. Repair the damage before starting and operating the mower.
- Never attempt to make a wheel or cutting height adjustment while the engine is running.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Do not change the engine governor setting or overspeed the engine. Excessive engine speeds are dangerous.

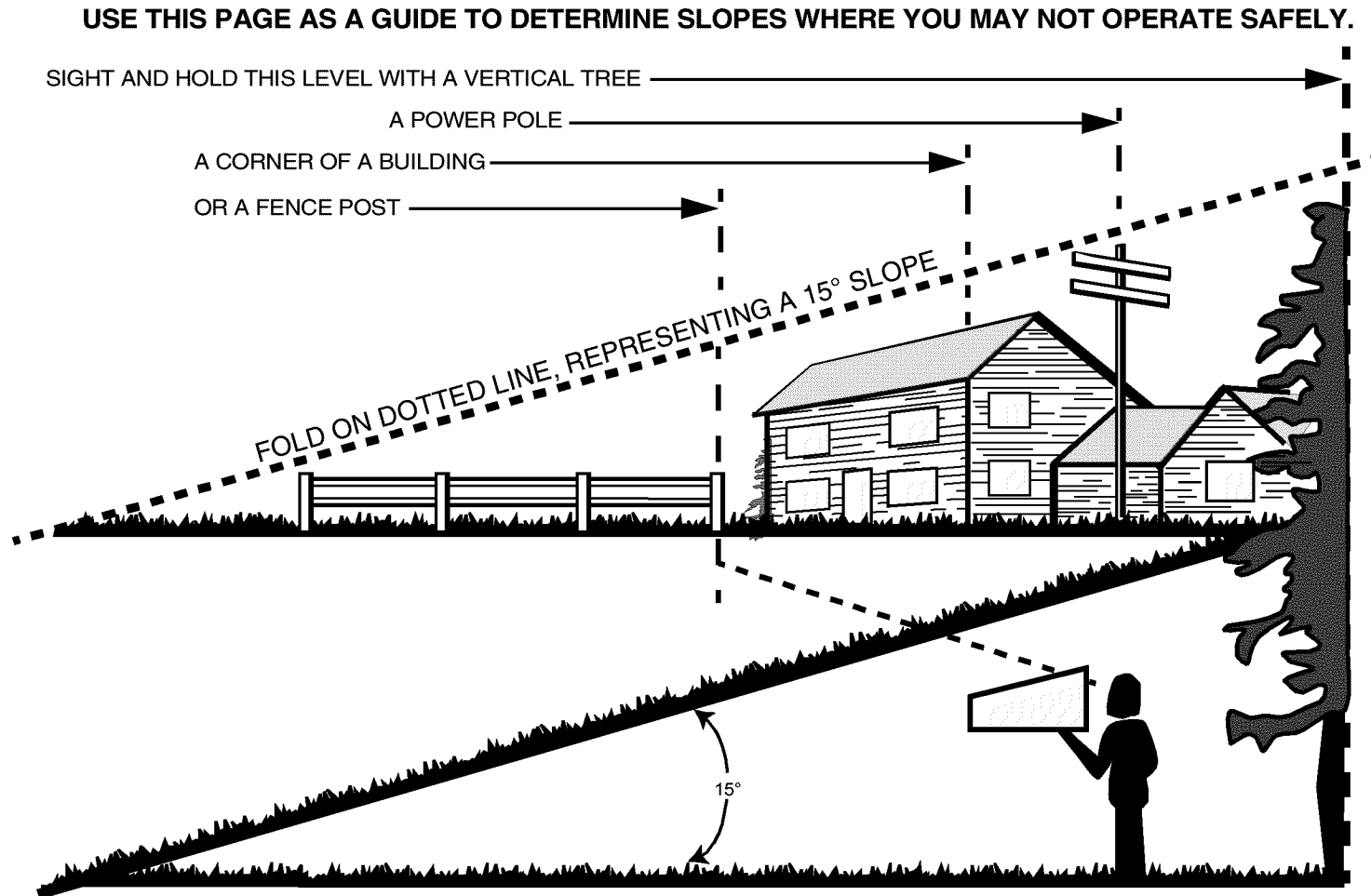
Your Responsibility

- 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.



SECTION 2: SLOPE GAUGE

Use this page as a guide to determine slopes where you may not operate the lawn mower safely.



6



WARNING

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

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 all loose parts, (hardware pack, grass bag, oil bottle, bag adapter & side discharge chute).

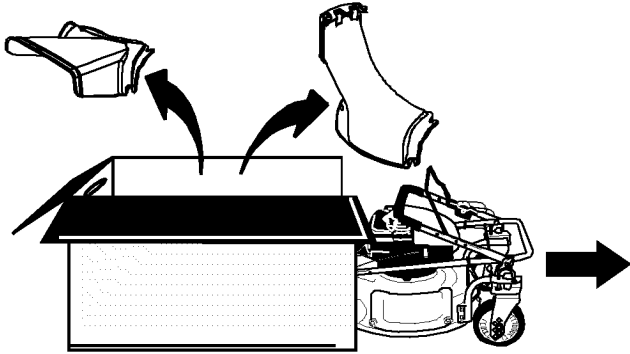


Figure 1

- Cut along dotted lines and lay carton down flat. Remove packing material.
- Roll or slide unit out of carton. Check carton thoroughly for loose parts. See Figure 1.

NOTE: Make sure not to crimp the cable while removing loose parts or the entire unit from the carton.

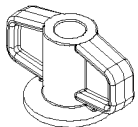
NOTE: Reference to right or left hand side of the mower and/or front or behind the mower is observed from the operating position.

Tools Required

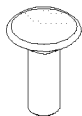
1. Pair of Pliers
2. Funnel

Hardware Pack

Identify each piece of the hardware pack as shown in Figure 1. Part numbers shown in parentheses.



Wing Knob (712-0397)
1/4-20 (2)



Carriage Bolt (710-0703)
1/4-20 (2)

Figure 1

Disconnecting Spark Plug

- Before setting up your lawn mower, disconnect the spark plug wire from the spark plug, and ground it against the engine. See Figure 2.
- Attach rubber boot to a bolt on the engine in order to ground.

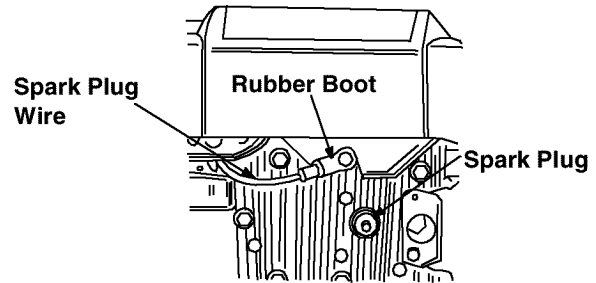


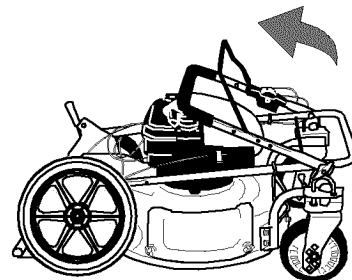
Figure 2

Assembling Handle

- Raise the lower handle in the direction shown in Figure 3A till it snaps into place. Do not move it to the B position yet.

NOTE: Make sure to route the cable inside the lower handle. Also do not crimp the cable while lifting the handle up.

A



B

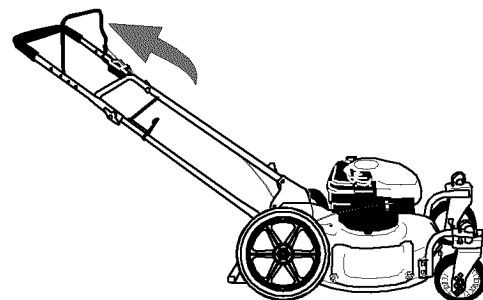


Figure 3

For shipping purposes, the hairpin clip is placed in the outer hole of the weld pin on the lower handle.

- Remove the hairpin clip from the outer hole of the weld pin.
- Using a pair of pliers, insert the hairpin clip into the inner hole in the weld pin. Insert the carriage bolt included in the hardware pack as illustrated below and secure with wing knob. See Figure 4.

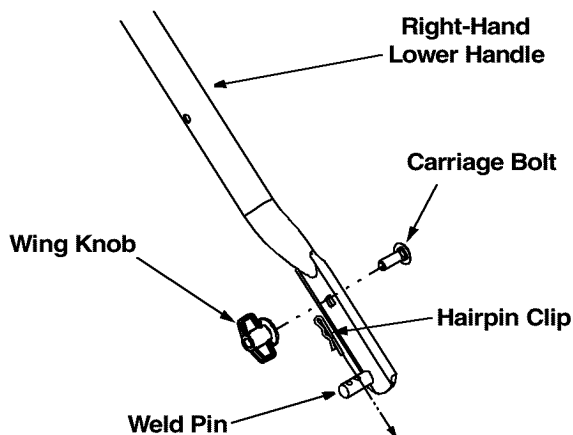


Figure 4

- Repeat on other side.
- Raise the upper handle in the direction shown in Figure 3B. Tighten the wing knobs which are already on the handle.
- Attach the cable to the lower handle with the two cable ties already on the lower handle. Place posts in holes on lower handle and pull tight on the cable ties; cut off the extra.

Attaching Starter Rope

The rope guide is already attached to the right side of the upper handle of your mower. See Figure 5.

- With the spark plug wire disconnected and grounded, hold the blade control handle against the upper handle, and pull the starter rope out of the engine.
- Release the blade control handle. Slip the starter rope into the rope guide. See Figure 5.

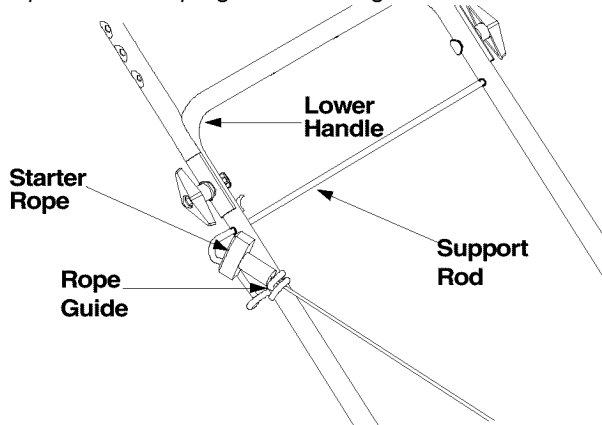


Figure 5

Attaching Discharge Chute

Your lawn mower was shipped as a mulcher. Remove the mulching cover and attach the side-discharge chute for discharging grass clippings.

- Remove three plastic wing knobs holding the mulching cover to the deck. See Figure 6. Keep the cover in a safe place for future use. Save wing knobs.



Figure 6

- Place the side-discharge chute on the deck (in place of the mulching cover) so that the top flange on the discharge chute goes under the top edge of the opening on the deck. See Figure 7.

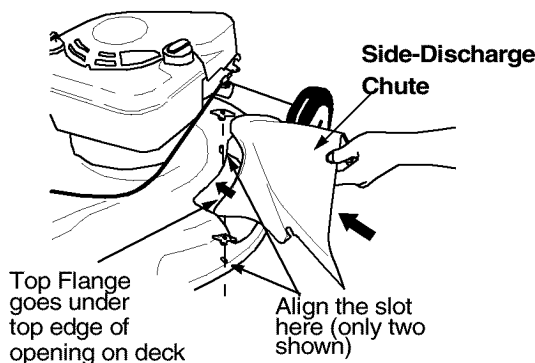


Figure 7

- Align the three slots on the chute with the hardware slots on the deck. See Figure 7.
- Secure with the wing knobs earlier removed. Tighten the wing knobs.

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

SECTION 4: KNOWING YOUR LAWN MOWER

Read this operator's manual and safety rules before operating your lawn mower. Compare the illustrations in Figure 8 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 operator's eyes thus causing severe eye damage. Always wear safety glasses while operating the mower, or while performing any adjustments or repairs on it.

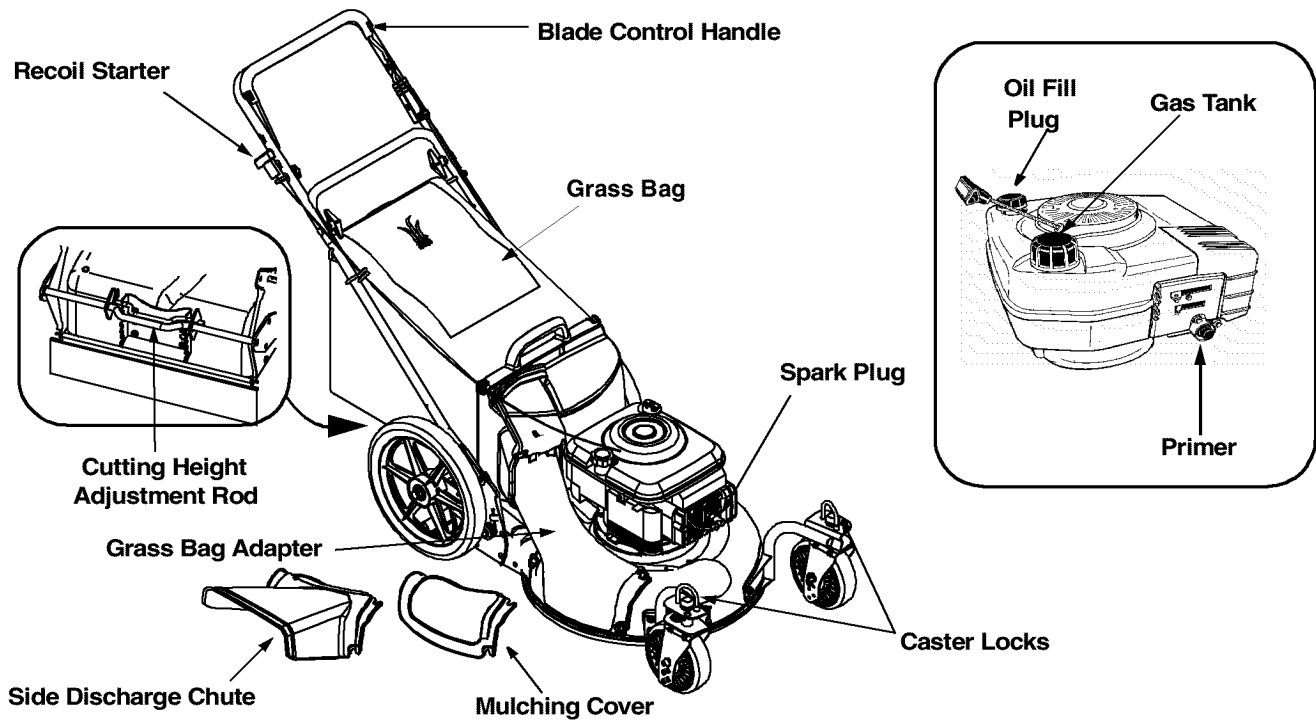


Figure 8

Blade Control Handle



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

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 the blade control handle to stop the engine and the blade.

Cutting Height Adjustment Rod

The cutting height adjustment rod is located between the two rear high wheels. The front wheel cutting height is determined by placing the axle rod in one of the six height adjustment positions in each caster assembly on the front wheels. All wheels must be placed in the same relative position.

Recoil Starter

The recoil starter is attached to the handle. Stand behind the unit and pull the recoil starter to start the unit.

Primer

The primer is used to pump gas into the carburetor. Use it to start a cold engine, but do not use it to restart a warm engine after short shutdown.

Caster Wheels

Your mower is equipped with caster wheels in front. The casters can be locked in a straight ahead position for mowing on hills, or can be left unlocked to swivel freely on level ground.

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.

Grass Bag Adapter

When installed, it allows the mower to collect clippings in the grass bag.

Side Discharge Chute

When installed allows the mower to discharge clippings out the side of the deck.

Mulching Cover

When installed, the mulching cover aids in a process of recirculating grass clippings repeatedly beneath the cutting deck. The ultra-fine clippings are then forced back into the lawn where they act as a natural fertilizer.

SECTION 5: OPERATING YOUR LAWN MOWER

Gas And Oil Fill-Up

Oil:

- Only use high quality detergent oil rated with API service classification SF, SG or SH. Use SAE30 oil; *do not use* 10W40 oil.
- Fill oil sump and check the oil level following steps below. See Figure 9.
 - a. Position the mower on level ground and clean area around oil fill plug.
 - b. Remove oil fill plug and dipstick. Wipe dipstick clean, insert it into oil fill hole and tighten securely.
 - c. Remove dipstick and check oil level. If the oil is not up to FULL mark on the dipstick, pour recommended oil through the oil fill and check the level again.
- Install oil fill plug and dipstick, tighten securely.

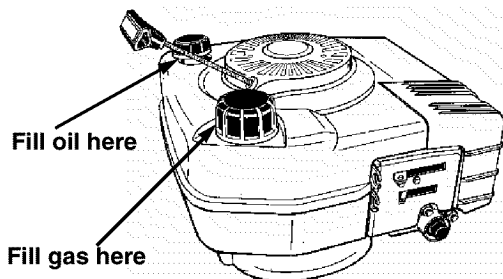


Figure 9

NOTE: Although multi-viscosity oils (5W30, 10W30, etc.) improve starting in cold weather, these multiviscosity oils will result in increased oil consumption when used above 32°F. Check oil level more frequently to avoid possible engine damage from running low on oil.

Gasoline



WARNING: Never fill fuel tank indoors, or when engine is running or hot. Do not smoke when filling fuel tank.

- Clean area around fuel cap. Remove cap. See Figure 9. Use a funnel to prevent spillage.
- Pour approximately 1.5 quarts of fresh, regular grade, unleaded gasoline slowly to the fuel tank.

IMPORTANT: Never mix engine oil with gasoline.

- Fill tank to 1/2" below the bottom of the filler neck. Wipe any fuel spillage. **Do not fill** fuel tank completely. Provide space for fuel expansion.

Starting Engine



WARNING: Be sure no one other than the operator is standing near the lawn mower while starting or operating.

Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

Keep hands, feet, hair and loose clothing away from any moving parts on engine and lawn mower.

- To prevent the unit from sliding, place your foot firmly against the tire.
- 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.
- Push primer three times. Wait about two seconds between each push. In cold weather around 55° F or below, prime five times. Do not prime to restart a warm engine after a short shutdown.
- Grasp 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.

Stopping Engine

- Release blade control handle to stop the engine and the blade.
- Disconnect spark plug wire and move away from spark plug to prevent accidental starting.

Locking Casters

IMPORTANT: If you are cutting grass on a slope, always lock the front wheel casters of your mower for straight ahead operation. On level ground you may leave the casters unlocked to pivot freely.

- To turn the mower on a slope with casters locked, depress the upper handle and raise the front wheels slightly.
- **To lock caster:** Lift and place the lock pin in the larger hole on each caster. See Figure 10.
- **To unlock caster:** Lift and place the lock pin in the smaller hole to allow casters to rotate freely.

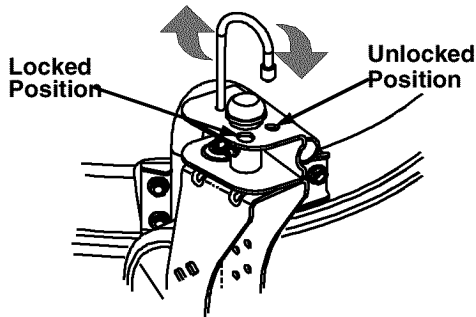


Figure 10



WARNING: Do not mow on slopes with casters unlocked since the mower can drift downhill.

Using Your Lawn Mower

Your mower is designed to operate as a mulching, bagging or a side-discharge unit.



WARNING: Do not operate the mower without the mulching cover, grass bag adapter or the discharge chute properly installed and tightly secured.

- Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or 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.

- The *best mowing pattern* is one that allows the clippings to discharge towards the uncut part of the lawn. This permits recutting of the clippings to further pulverize them. When cutting high weeds, discharge towards cut portion, then recut at right angles to first direction.
- For a *healthy lawn*, always cut off one-third or less of the total length of the grass. Lawn should be trimmed in fall as long as there is growth.



WARNING: If you strike a foreign object, stop the engine. Remove spark plug wire from spark plug, thoroughly inspect the mower for any damage. 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.

Height Adjustment

Refer to height adjustments section of this manual on page 14 for instruction on how to adjust the cutting height and the handle height.

- For best results in mowing, keep the cutting height position high until it is determined which height is best for your lawn.

Attaching The Grass Bag

- Remove three wing knobs holding the mulching baffle or side discharge chute in place and remove from unit. See Figure 11.

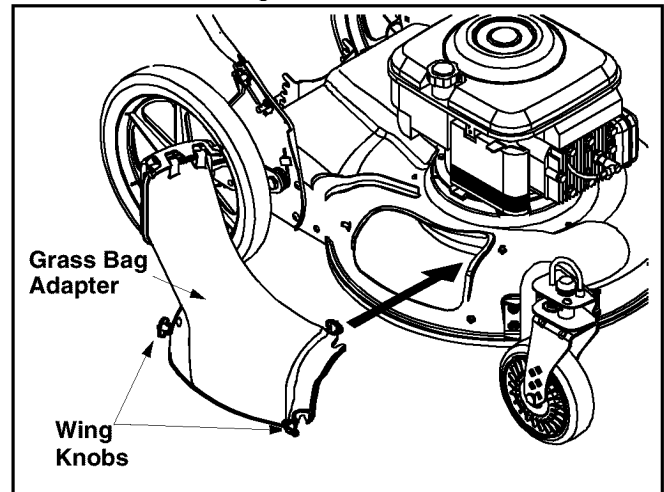


Figure 11

- Replace with grass bag adapter, while making sure the front lip of adapter goes under the edge of the deck. Secure with wing knobs previously removed.
- Lift chute door on the grass bag adapter and slide grass bag onto the adapter. See Figure 12.

NOTE: The chute door has been designed to move the starter rope out of the way of the bag when the chute door is opened.

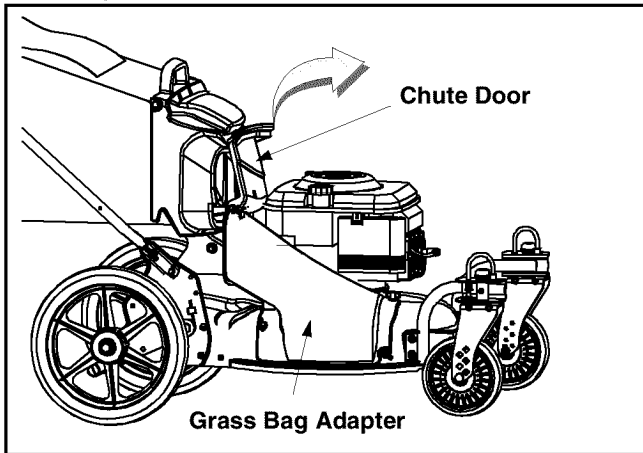


Figure 12

Emptying the Grass Bag

- While holding the grass bag by both the rear handle and the lower handle, lift the grass bag straight up off the adapter. The chute door will move the rope out of the way of the bag.
- Continue to hold the lower handle and raise the rear of the grass bag up toward your chest. The grass bag will open and the grass clippings will disperse.

- When replacing the grass bag, be sure the top of the bag rests on the wire support between the handles.

Attaching Side Discharge Chute

- Remove mulching baffle or grass bag adapter from unit by unthreading wing knobs.
- Attach side discharge chute to unit and secure with the three wing knobs. See Figure 13.

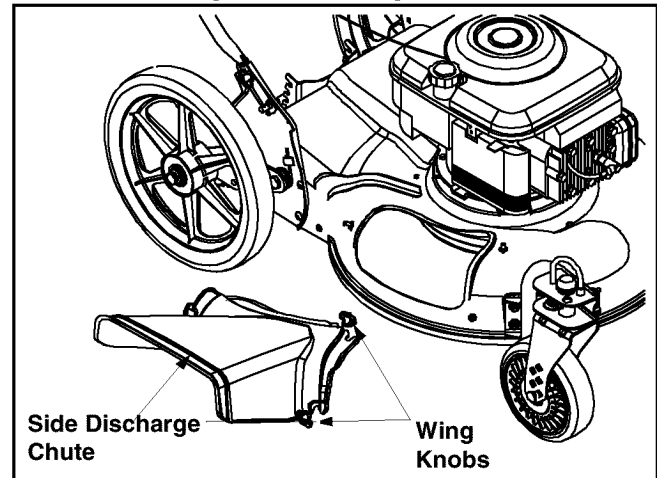


Figure 13

SECTION 6: MAINTENANCE



WARNING: Always stop engine and disconnect spark plug wire before performing any maintenance or adjustments.

Cleaning Mower

The underside of the mower deck should be cleaned after each use to prevent any build-up of grass clippings, leaves, dirt, or other debris. If this debris is allowed to accumulate, it will result in rust and corrosion.

- Disconnect spark plug wire.
- Drain the gasoline from the lawn mower, or place a piece of plastic under the gas cap.
- Tip the mower so that it rests on the housing. Keep the side with the air cleaner facing up. Hold the mower firmly.
- Scrape clean the underside of the deck with a suitable tool.

- Put the mower back on its wheels on the ground. If you had put plastic under the gas cap, make sure to remove it now.



WARNING: 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.

Lubrication

See Figure 14 for the lubrication chart.

Wheels

- Lubricate the wheels at least once a season with light oil or engine oil. Also, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with oil.

Caster Assembly

- Grease fittings are provided for easy lubrication of the swivel pins located on the front caster assembly. Use a grease gun to lubricate the casters every 25 operating hours or so.

Blade Control Handle

- Lubricate the pivot points on the blade control handle and the brake cable at least once a season with light oil. The blade control handle must operate freely in both directions.

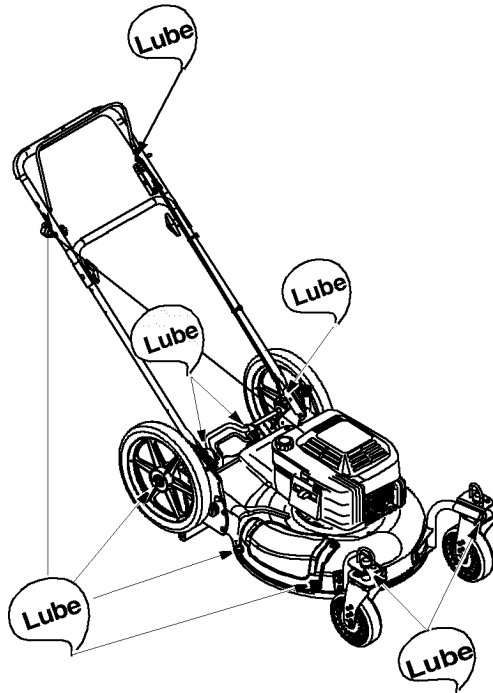


Figure 14: Lubrication Chart

Blade Care

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



WARNING: When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag to grasp the cutting blade.

- Disconnect spark plug wire from spark plug.
- Turn mower on its side making sure that the air filter and the carburetor are up.

To Remove Blade

- Remove the bolt and blade bell support which hold the blade and adapter to the engine crankshaft. See Figure 15.

- Remove the blade and adapter from the crankshaft.

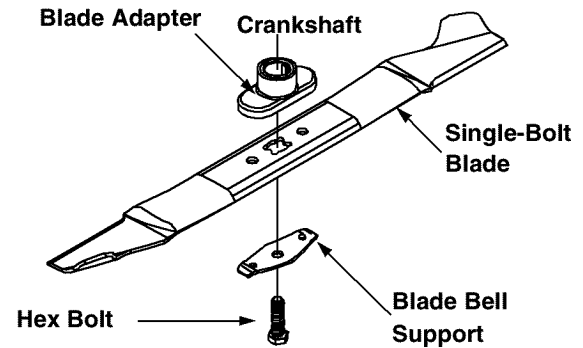


Figure 15

To Replace Blade

- 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.
- Install the blade adapter on the crankshaft with the “star” away from the engine. See Figure 15.
- Place the new blade with the side marked bottom (or with part number) facing away from the adapter.
- Place the bell support next. Make sure to align the tabs in the holes of the blade with the hole in the bell support.
- Insert the hex bolt through the blade assembly. Figure 15 shows the correct order of assembly.

Recommended Torque

- Follow the recommended torque for the bolt which is 450 inch-lbs to 600 inch-lbs.

IMPORTANT: The bolt, used to secure the blade to the engine, is specially heat-treated. **Do not substitute.** To order replacement bolt, refer to the Parts List section of this manual.



WARNING: To ensure safe operation of your unit, all nuts and bolts must be checked periodically for correct tightness.

To Sharpen Blade

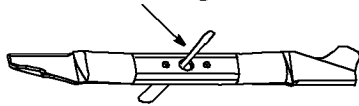
- The blade can be sharpened with a file or on a grinding wheel. Do not attempt to sharpen while blade is on the mower.
- Follow the original angle of grind as a guide. Make sure that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade.

NOTE: An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

- Test the blade by balancing it on a round shaft screwdriver or a blade balancer. See Figure 16.

- If the blade is not balanced, remove metal from the heavy side until it balances evenly.

1. Insert screw driver through hole



2. Blade should be parallel to ground

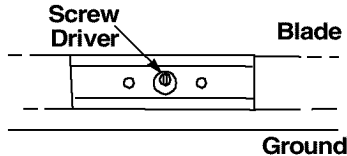


Figure 16

Engine Maintenance

- A list of key maintenance jobs required for good performance by the mower over the years follows here. Follow the accompanying engine manual for detailed list and instructions.
- Change engine oil after the first two operating hours and every 25 operating hours thereafter. Check oil level before starting the engine.

- Service the foam filter in the air cleaner every 25 hours of use and replace the paper filter component every 100 hours. You may have to service the air filter more frequently if you are operating the mower under extremely dusty conditions.
- Clean the engine periodically. Remove dirt and debris with a cloth or brush. We do not recommend the use of pressure washers or garden hose to clean your unit. These may cause damage to electric components, spindles, pulleys, bearings or the engine. The use of water will shorten life of the mower and reduce its serviceability.
- Clean the spark plug and reset the gap to .030" at least once a season or every 50 hours of operation. Spark plug replacement is recommended at the start of each season. Refer to the engine manual, shipped with this unit, for correct spark plug type.
- Inspect muffler periodically, and replace if necessary. Damaged mufflers or spark arresters can create a fire hazard. Make sure to avoid muffler and surrounding areas while the mower engine is hot because temperature of these areas of the engine may exceed 150° F.

SECTION 7: MAKING ADJUSTMENTS

Handle Height

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 hand knobs and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cables.

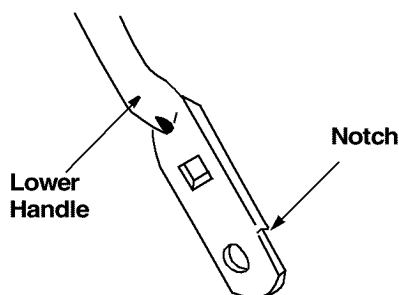


Figure 17

- Remove the hairpin clips from the weld pins on the handle brackets. Refer to Figure 4. Press out on the legs of the lower handle. Remove lower handle from the mower.

- Turn the lower handle around so the notch on the bottom of the lower handle is facing forward as shown in Figure 17. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.
- Reassemble the upper handle to the lower handle.
- Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Assembly section.

Cutting Height

IMPORTANT: All wheels must be placed in the same relative position. For rough or uneven lawns, move the height adjustment lever to a higher position. This will help stop scalping of the grass.

Front Wheel

The **front wheel** cutting height is determined by placing the axle rod in one of the six height adjustment positions in each caster assembly on the front wheels.

- To adjust, remove the wing knob from the axle bolt. See Figure 18.
- Slide the axle bolt and spring washer from the assembly and select a cutting height.

- With the spring washer on the axle bolt, reinsert the axle bolt in the square hole desired, through the wheel assembly. See Figure 18.
- Secure with wing knob previously removed.

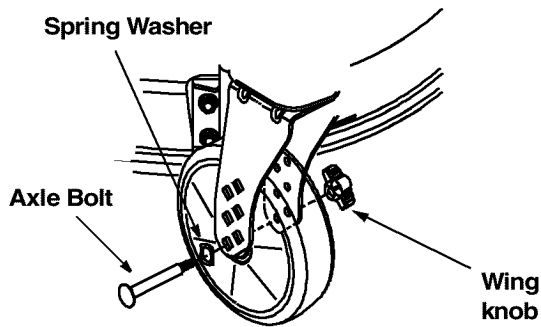


Figure 18

Rear Wheel

The rear wheel cutting height adjustment rod is located between the two rear hi-wheels.

- Squeeze the two adjustment rods together and pull towards the operator. See Figure 19.
- Move rods upward or downward to any one of the six positions and reinsert. See Figure 19.
- Make sure that the rear rod sits in the groove of the new height position.

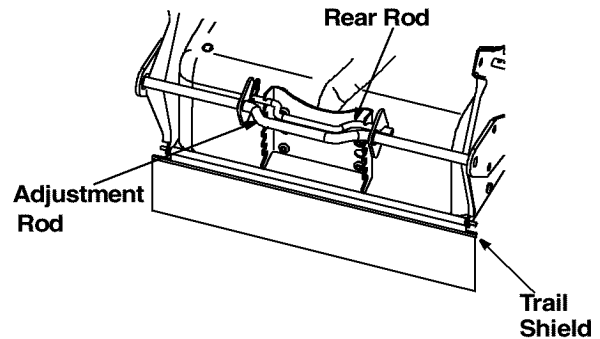


Figure 19

SECTION 8: OFF-SEASON STORAGE

Prepare your lawn mower for storage at the end of the season or **if the unit will not be used for 30 days** or more. Store the mower in a **clean, dry area**.

Mower

- Clean underside of the mower following instructions on page 12.

NOTE: We do not recommend the use of pressure washers or garden hose to clean your unit. These may cause damage to electric components, spindles, pulleys, bearings or the engine. The use of water will shorten life of the mower and reduce its serviceability.

- Inspect and replace/sharpen blade, if required.
- Lubricate mower following the lubrication chart in Figure 14 of this manual.
- You can fold your mower's handle for convenient storage. Follow the steps below for folding.
 - a. Remove the starter rope from the rope guide.
 - b. Loosen the two hand knobs on the sides of the handle, and let the upper handle fold down to the rear.
 - c. Move the hairpin clips to the outer hole in the weld pins on the handle mounting brackets.
 - d. Remove the carriage bolts and wing knobs from the lower handle mounting brackets.
 - e. Spread the sides of the lower handle, and push it forward and down.

NOTE: When folding the handle for storage or transportation, be careful not to bend or kink the cable.

Engine

- Follow recommendations in the accompanying engine manual for off-season storage of the engine.
- Change oil if it has not been changed in the last three months. For instructions on how to change oil, refer to the engine manual.
- Clean engine and remove any grass clippings, dirt, or chaff from the exterior of the engine.
- Remove any dirt or debris from cooling fins, air intake screen, levers, and linkage.

Other

- Do not store gasoline from one season to another.
- Replace your gasoline can if it starts to rust. Rust and/or dirt in the gasoline will cause problems. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

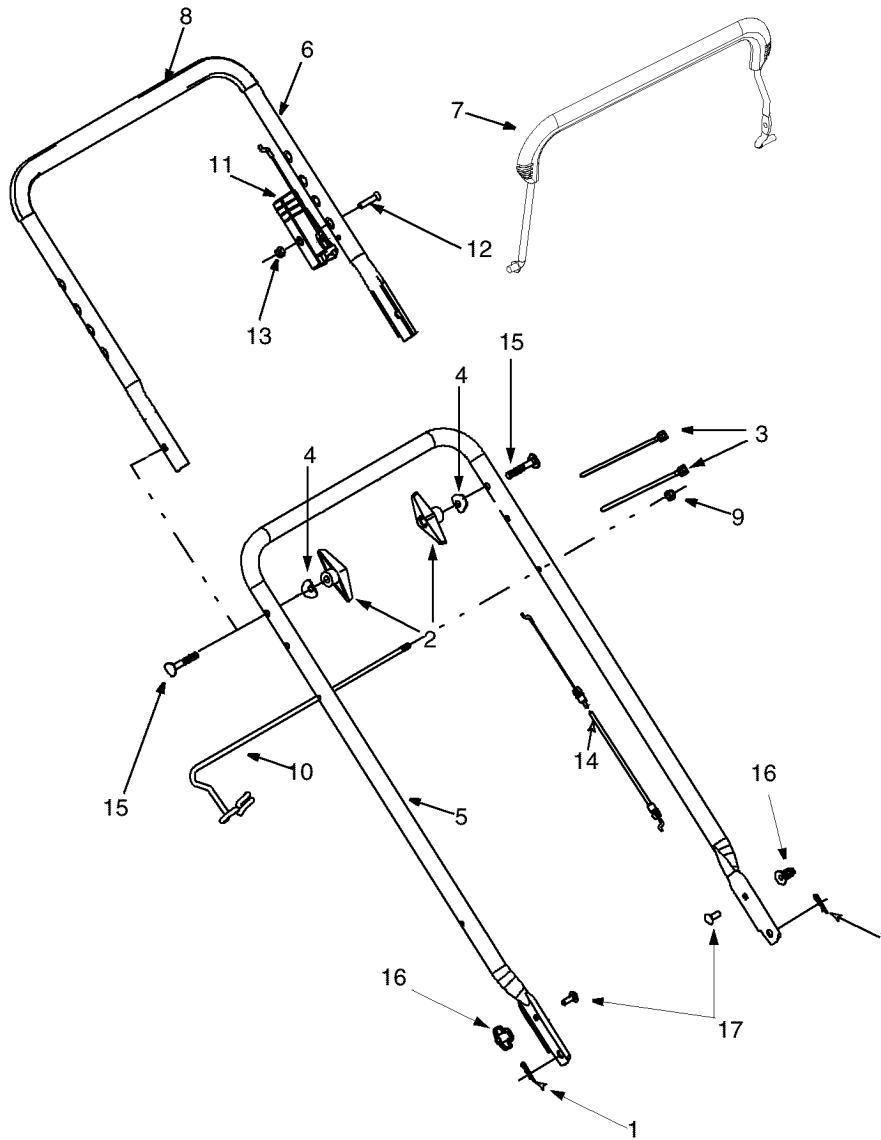
NOTE: If storing in an unventilated or metal storage shed, be certain to rustproof the equipment by coating with a light oil or silicone.

SECTION 9: TROUBLE-SHOOTING GUIDE

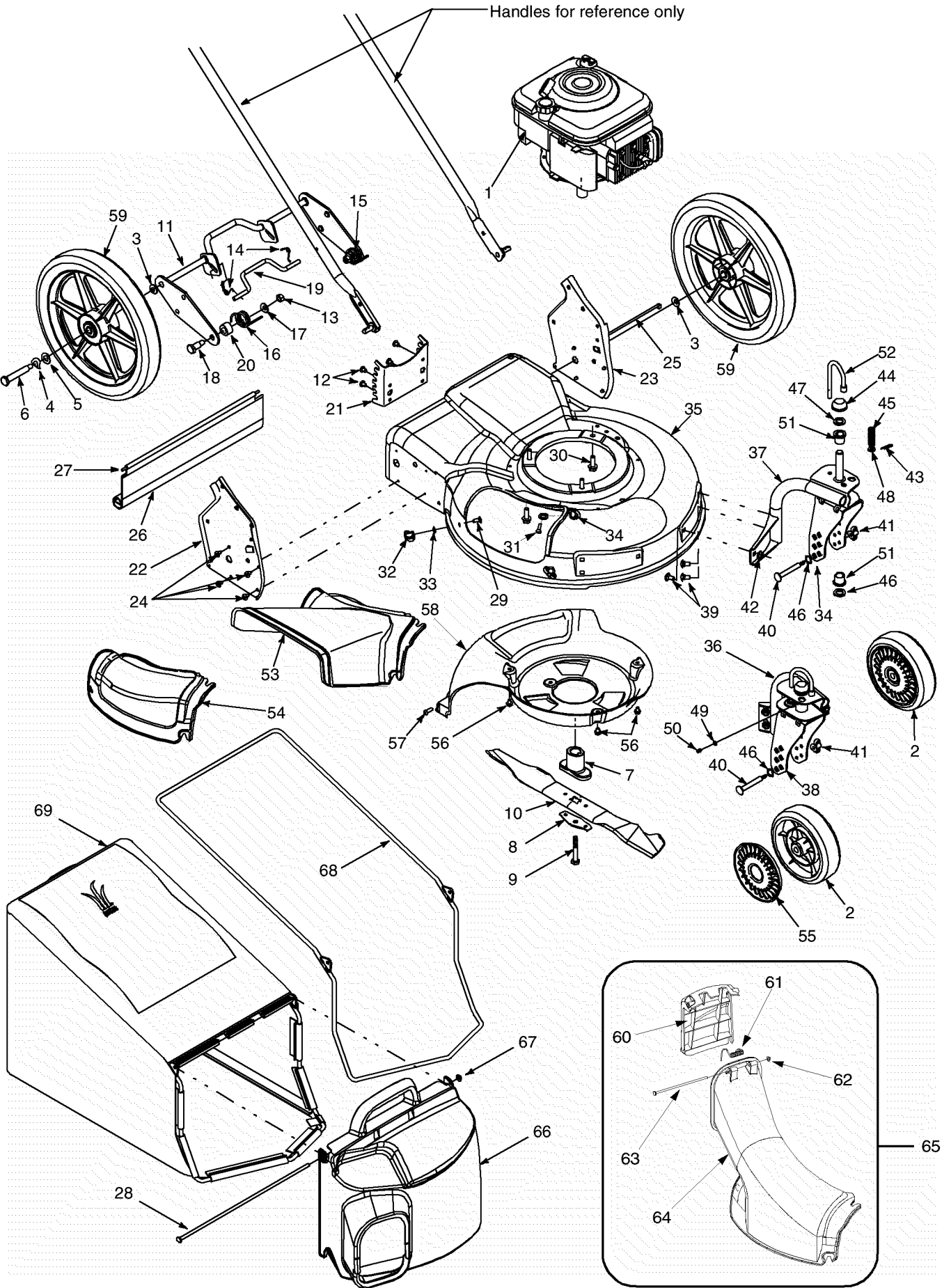
Problem	Possible Cause	Corrective Action
Engine fails to start	<ol style="list-style-type: none"> 1. Blade control handle disengaged 2. Spark plug wire disconnected 3. Fuel tank empty, or stale fuel 4. Blocked fuel line 5. Faulty spark plug 	<ol style="list-style-type: none"> 1. Engage blade control handle. 2. Connect wire to spark plug. 3. Fill tank with fresh, clean fuel. 4. Clean fuel line. 5. Clean, adjust gap or replace.
Engine runs erratic	<ol style="list-style-type: none"> 1. Spark plug wire loose 2. Blocked fuel line or stale fuel 3. Vent in gas cap plugged 4. Water or dirt in fuel system 5. Dirty air cleaner 	<ol style="list-style-type: none"> 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. Refer to engine manual.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low 2. Air flow restricted 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Clean lawn mower engine.
Occasional skip (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close 	<ol style="list-style-type: none"> 1. Adjust gap to .030 inches.
Idles poorly	<ol style="list-style-type: none"> 1. Spark plug fouled, faulty, or gap too wide 2. Dirty air cleaner 	<ol style="list-style-type: none"> 1. Reset gap to .030 inches or replace spark plug. 2. Clean air cleaner.
Excessive vibration	<ol style="list-style-type: none"> 1. Cutting blade loose or unbalanced 2. Bent cutting blade 3. Bent engine crankshaft 	<ol style="list-style-type: none"> 1. Tighten blade and adapter, balance blade. 2. Replace blade. 3. Contact your nearest White dealer
Mower will not mulch grass	<ol style="list-style-type: none"> 1. Wet grass 2. Excessively high grass 3. Dull blade 	<ol style="list-style-type: none"> 1. Wait until later to cut. 2. Mow once at a high cutting height, then mow again at desired height. Make a narrower cutting swath (1/2) width. Do not cut off more than 1/3 of the total length. 3. Sharpen or replace blade.
Uneven cut	<ol style="list-style-type: none"> 1. Wheels not in same height position 2. Dull blade 	<ol style="list-style-type: none"> 1. Place all four wheels in same relative height position. 2. Sharpen or replace blade.

NOTE: For repairs beyond the minor adjustments listed above, contact an authorized MTD service dealer or call 1-(800)-800-7310 to reach a Customer Support representative.

SECTION 10: PARTS LIST



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1.	714-0104	Hairpin Clip	10.	747-0940A	Grass Bag Support Rod
2.	720-0241	Wing knob	11.	746-0883	Housing Control
3.	726-0240	Cable Tie	12.	710-1270	Oval C-Sunk Scr.
4.	736-0451	Saddle Washer	13.	712-0324	Hex L-Nut 1/4-20 Thd.
5.	749-0907B	Lower Handle	14.	746-1131	Control Cable, 46"
6.	749-0438D	Upper Handle	15.	710-1174	Carriage Bolt
7.	647-0004	Deluxe Control Handle	16.	712-0397	Knob, Wing, 1/4-20
8.	720-0295	Foam Grip	17.	710-0703	Carriage Screw, 1/4-20 x .75
9.	712-0429	Hex Nut, 5/16-18			



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1.	—	Engine	35.	782-0049	Deck 21"
	751B28202	Engine Shroud	36.	682-9020A	Caster Assembly, RH
2.	734-1857	Wheel, Front Caster 7 X 2	37.	682-9021A	Caster Assembly, LH
3.	736-0105	Bell Washer .401 X .870 X .063	38.	682-9024	Caster Bracket Assembly, RH
4.	736-0182	Spring Washer .50 I.D. x 1.0 x .022	39.	710-0260	Carriage Bolt 5/16-18 x .62
5.	736-0272	Flat Washer .510 x 1.0 x .060	40.	711-1146	Caster Axle .374 x 2.59
6.	738-0481A	Shoulder Screw .500 x 2.62: 3/8 -16	41.	712-0397	Wing Knob
7.	748-0377C	Blade Adapter	42.	712-3004A	Flange Nut 5/16-18 Gr.5
8.	736-0524A	Blade Bell Support	43.	714-0104	Hairpin Clip
9.	710-1257	Hex Bolt 3/8 - 24 x 2.5 Gr. 8	44.	726-0214	Push Cap
10.	742-0741	Blade 21", Mulching	45.	732-0306	Compression Spring
11.	647-0028	Hi-Wheel Height Adj. Support	46.	736-0232	Wave Washer .530 I.D. x .780 O.D.
12.	710-1348	AB Screw 1/4-14 x .50	47.	736-0366	Flat Washer, .604 x 1.12 x .125
13.	712-3017	Hex Nut 3/8 -16	48.	736-0264	Flat Washer .330 I.D. x .630 x .06
14.	732-0845	Torsion Spring	49.	736-0931	Flat Washer. .203 I.D. x .403 x .040
15.	732-0843	Torsion Spring, RH	50.	737-3000	Lube Fitting
16.	732-0844	Torsion Spring, LH	51.	741-0685	Flange Bearing
17.	736-0105	Bell Washer .401 x .870 x .063	52.	747-0924	Lock Pin, Front Wheel
18.	738-0145	Shoulder Screw .500 x .840	53.	731-1832	Discharge Chute
19.	747-0971	Handle, Height Adjustment	54.	731-1833	Mulching Cover
20.	750-1090	Spacer .500 x 1.0 x .600	55.	731-1886	Hubcap
21.	782-0572	Height Adj. Bracket, RH	56.	710-0653	Hex Screw, TT 1/4-20 x .375
22.	682-3054	Handle Bracket Ass'y, RH	57.	710-0969	Self-tapping Screw (Hi-Lo)
23.	682-3055	Handle Bracket Ass'y, LH	58.	731-1828	Rear Baffle
24.	710-1348	AB Screw 1/4-14	59.	734-1860	Hi-Wheel 14 X 2
25.	725-0157	Cable Tie	60.	731-1874	Chute Door
26.	731-1901	Trail Shield	61.	732-0819	Torsion Spring
27.	732-0842	Trail Shield Wire	62.	726-0111	Push Cap
28.	747-0939	Brass Bag Pivot Rod	63.	747-0965	Pivot Rod
29.	710-0134	Carriage Screw	64.	731-1713B	Discharge Chute
30.	710-0654A	TT Screw 3/8 -16 x 1.00	65.	631-0066	Chute Assembly
31.	710-0703	Carriage Screw 1/4-20 x .75	66.	631-0071	Top Discharge Grass Bag Cover
32.	712-0397	Wing knob	67.	726-0106	Cap Nut
33.	726-0233	Push Nut	68.	747-0937	Grass Bag Frame
34.	682-9026	Caster Bracket Assembly, LH	69.	664-01086	Grass Bag, Sail w/ Sprig

MANUFACTURER'S LIMITED WARRANTY FOR:



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

MTD 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 MTD 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 MTD LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-800-800-7310 or log on to our Web site at www.mtdproducts.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. MTD LLC does not extend any warranty for products sold or exported outside of the United States, its possessions and territories, except those sold through MTD LLC's authorized channels of export distribution.
- e. Parts that are not genuine MTD 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 MTD 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. MTD 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.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019; Phone: 1-800-800-7310