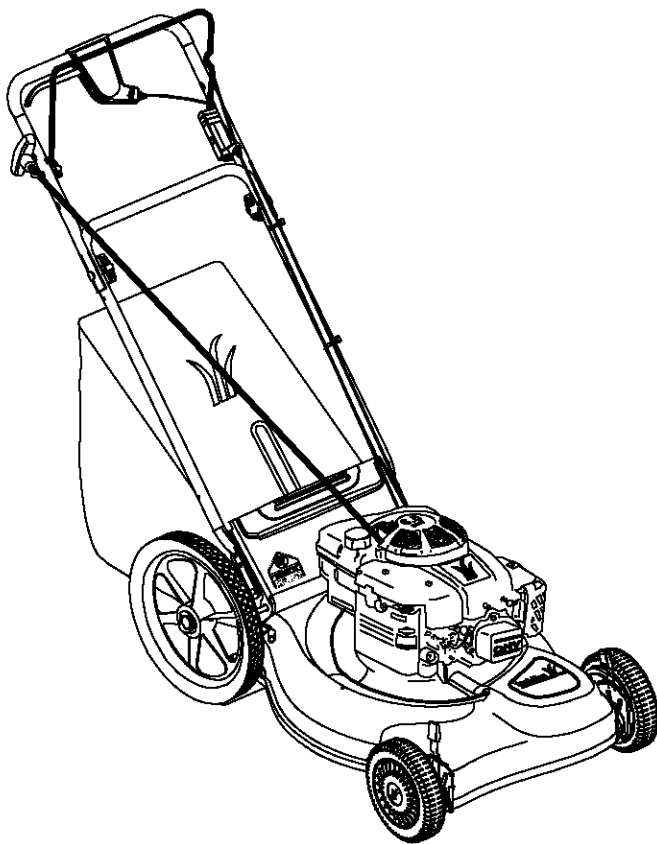


Operator's Manual



21" Self Propelled Mulching Mower

Model No.

12A-559K401



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 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

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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 in the operating position and looking down at the cutting 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.

(Model Number)

(Serial Number)

MTD PRODUCTS INC
CLEVELAND, OHIO 44136

Copy the model number here: _____

Copy the serial number here: _____

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 .

SECTION 1: MAINTAINING 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 YOUR LAWN MOWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL, HEED ITS WARNING.

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

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.

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:
 - Step back from the mower to fully extend your arms.
 - Be sure you are well balanced with sure footing.
 - Pull the mower back slowly, no more than half way toward you.
 - 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. A slip and fall can cause serious personal 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 the 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.

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.
- 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.
- Watch for holes, ruts, hidden objects, or bumps. Tall grass can hide obstacles.

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.
- We do not recommend the use of pressure washers or garden hose to clean your unit. They may cause damage to electric components, spindles, pulleys, bearings or the engine. The use of water will result in shortened life and reduce serviceability.
- 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.

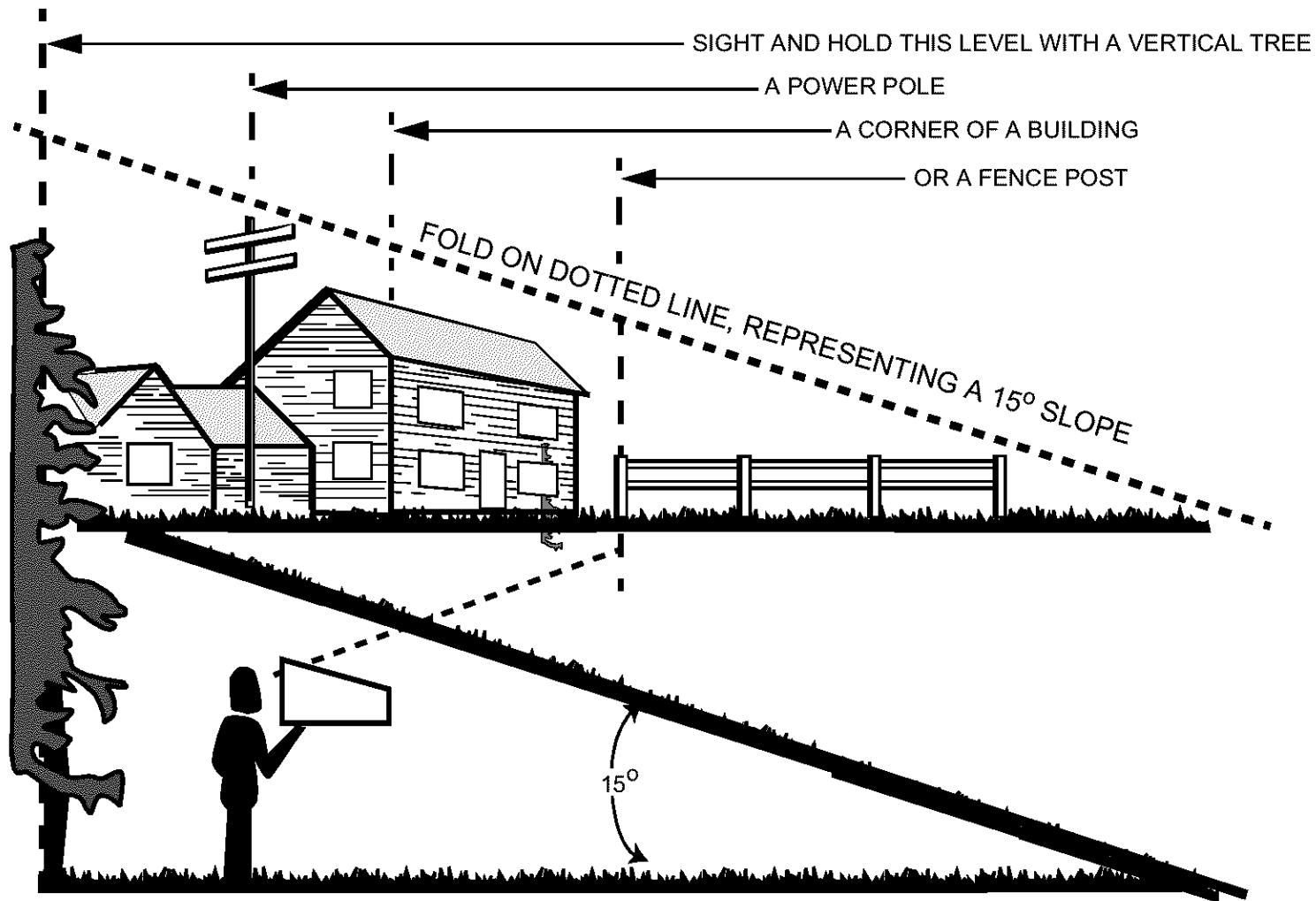


WARNING - YOUR RESPONSIBILITY: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.



SECTION 2: SLOPE GAUGE

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



WARNING

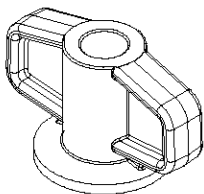
Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in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

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

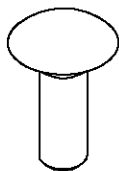
SECTION 3: HARDWARE PACK

Please identify each piece of the hardware pack as shown in Figure 1.

Figure 1



Wing Nut 1/4-20 (2)



Carriage Bolt 1/4-20 (2)

SECTION 4: UNPACKING

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 included with unit (i.e., operator's manual, oil, etc.).
- Cut corners and lay carton down flat. Remove packing material.

- Roll or slide unit out of carton. Check carton thoroughly for loose parts.

NOTE: Make sure not to crimp the cables while removing the 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.

SECTION 5: ASSEMBLING YOUR LAWN MOWER

Tools Required

- Pair of Pliers
- Funnel
- Set of adjustable wrenches

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 the spark plug wire to a bolt on the engine to ground it.

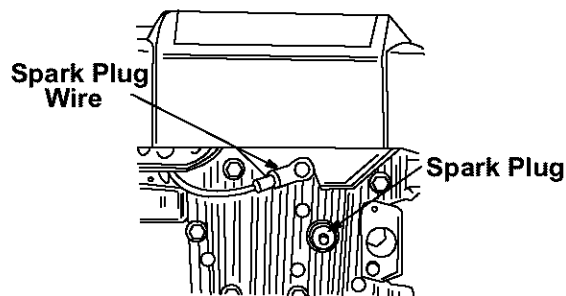


Figure 2

Assembling Handle

- Remove grass bag from the unit and set it out of the way. See Figure 3 (step 1).
- Remove any packing material which may be between the upper and lower handles for shipping purposes.

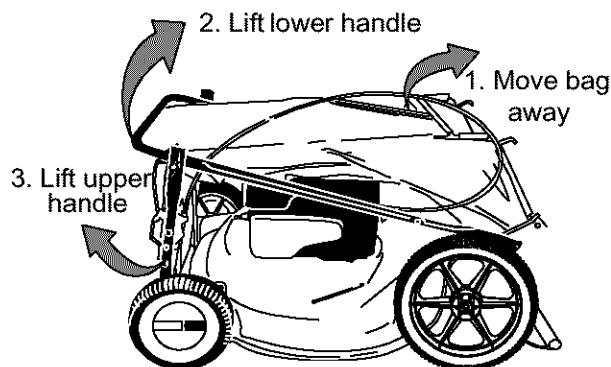


Figure 3

- Raise the lower handle in the direction shown in Figure 3 (step 2) till it snaps into place.

- Raise the upper handle in the direction shown in Figure 3 (step 3). Tighten the wing nuts which are already on the handle. See Figure 4.

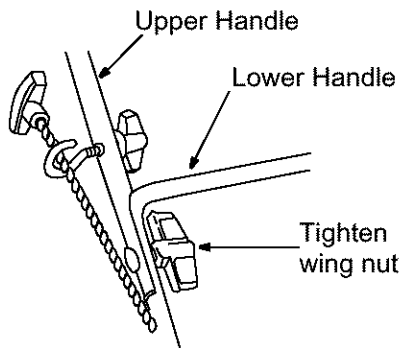


Figure 4

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

- 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. Repeat on other side. See Figure 5.

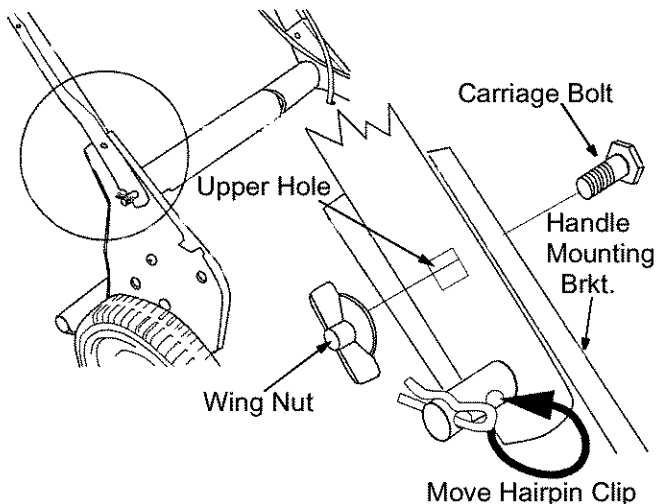


Figure 5

- After you have moved the hairpin clip, install the carriage bolt, (carriage bolt must go to the inside of handle) included in the hardware pack, in the upper hole on the handle mounting bracket. Secure with one plastic wing nut, also included in the hardware pack. Repeat process on other side.
- Attach the cables to the lower handle with the two cable ties already on the lower handle, insert pegs on cable ties into the holes on the lower handle. Pull cable ties tight and cut off the extra. See Figure 6.

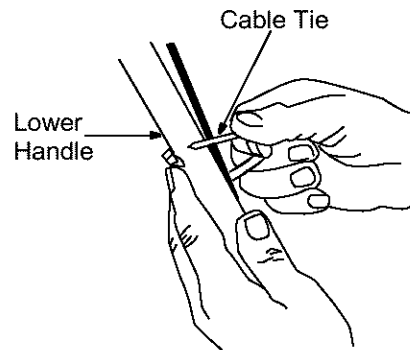


Figure 6

Attaching Starter Rope

The rope guide is already attached to the right side of the upper handle of your mower. See Figure 7.

- 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.
- Slip the rope through the rope guide as shown below. Tighten the wing nut holding the rope guide to the upper handle.

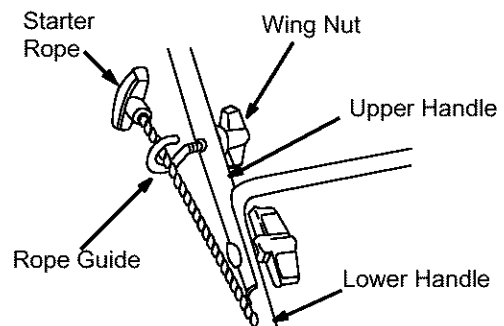


Figure 7

NOTE: Leave rear mulching baffle in if your want to use your mower as a mulcher.

Attaching Grasscatcher

- Lift the rear discharge door and remove the rear mulching baffle from the mower. See Figure 8.

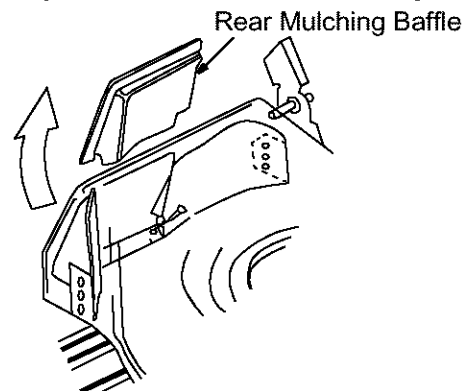


Figure 8

NOTE: Make sure that the cables are routed to the outside of the handle and out of the way when attaching the grasscatcher.

- Place the hooks of the grasscatcher into the slots in the handle bracket assemblies on both sides. See Figure 9. Release the rear discharge door.
- To remove the grasscatcher, lift the rear discharge door on the mower. Lift the grasscatcher up, out of the slots in the handle bracket assemblies. Reinstall the plastic rear mulching baffle and release the rear discharge door.

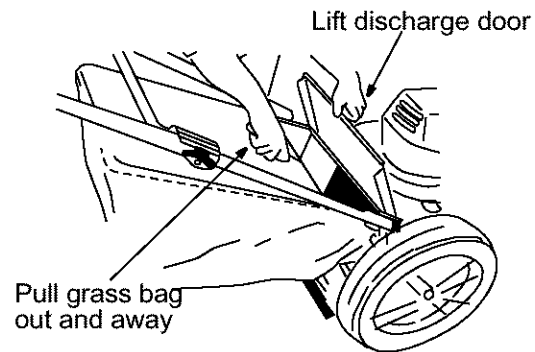


Figure 9

NOTE: For instructions on how to bag the grass clippings, please refer to page 11 of this manual.



WARNING: Never operate the mower unless the hooks on the grasscatcher are seated in the slots on the handle bracket assemblies, and the rear discharge door rest firmly against the top of the grasscatcher.

SECTION 6: KNOW YOUR LAWN MOWER

Read this owner's manual and safety rules before operating your lawn mower. Compare the illustrations in Figure 10 with your lawn mower to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

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.

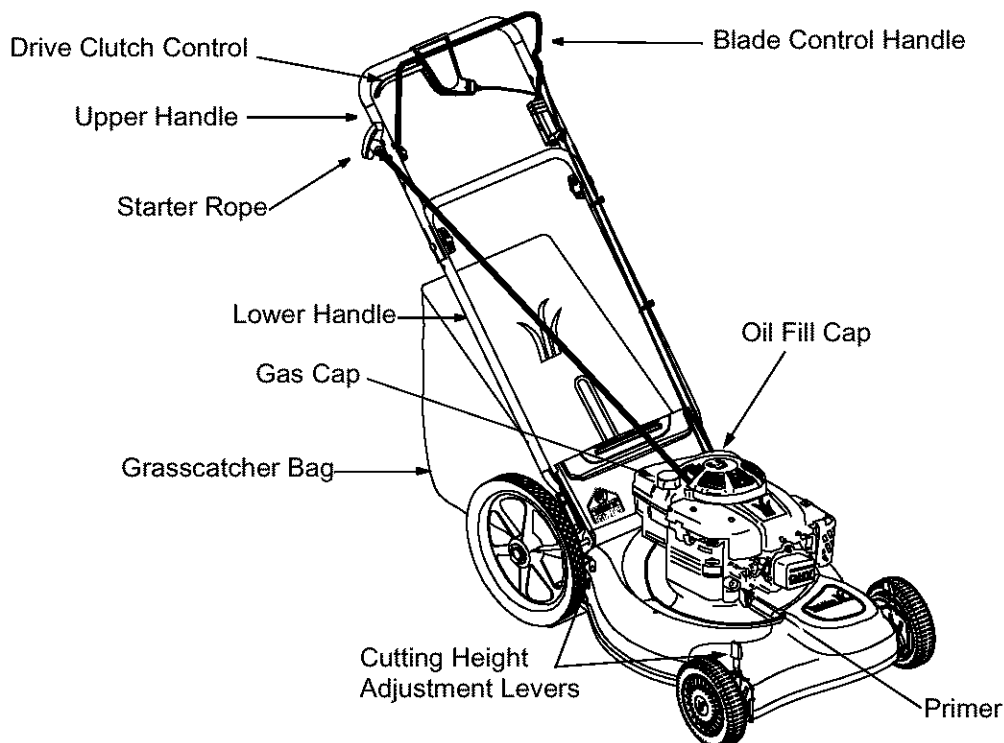


Figure 10

Starter Rope

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

Primer

The primer is used to pump gas into the carburetor. Use it to assist in starting a cold engine, but do not use it when restarting a warm engine after a short shutdown. Refer to Figure 10.

Blade Control Handle



WARNING: This control mechanism is a safety device. Never attempt to bypass its operations or alter it in any way.

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.

Drive Clutch Control

The drive clutch control lever is located on the upper handle and is used to engage the drive. Squeeze the lever against the upper handle to engage the drive; release the drive clutch control to slow down or stop the mower.

SECTION 7: 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 only.
- Fill oil sump and check the oil level following steps below.
 - a. Position the mower on level ground and clean area around oil fill cap.
 - b. Remove oil fill cap 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 upto FULL mark on the dipstick, pour recommended oil through the oil fill and check the level again.
- Install oil fill cap and dipstick, tighten securely.

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 the 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 up the fuel tank.

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

IMPORTANT: Never mix engine oil with gasoline.

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

Before Starting Mower

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug wire (inside the rubber boot) is fastened securely over the metal tip on the spark plug.
- Check the drive clutch control for proper adjustment. If the mower does not propel itself or the drive wheels hesitate with the drive clutch engaged, perform the drive clutch control adjustment as instructed on page 18 of this manual.

Throttle Speed

Your engine is equipped with a constant speed throttle, which is set at full throttle for best performance.

Starting Engine



WARNING: Be sure no one other than the operator is standing near the lawn mower while starting engine or operating mower. 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. When starting the unit for the first time, face the mower against a solid object such as wall, fence, etc. Start the unit and if it shows any signs of motion while the drive clutch control is still engaged, shut the engine off immediately.

- Make sure that the drive clutch control is adjusted so the drive belt is as loose as possible.
- Move throttle control lever all the way back to the "rabbit" position.
- Push primer three times, See Figure 10. 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.
- Standing behind the mower, depress the blade control handle and hold it against the upper handle.
- 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 rewind 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.

Using your Lawn Mower

- You can use your mower as a mulching mower or a rear bagger.
- **Do not** operate the mower without the rear mulching baffle or the grasscatcher bag properly installed.
- 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.
- 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.

Bagging Grass Clippings

You can use the grasscatcher bag to collect clippings while you are operating the mower. Attach the grasscatcher following instructions on page 9 of this manual. The grass clippings will automatically collect in the bag as you run the mower. Operate the mower till the grass bag is full. Do NOT allow the bag to overfill with grass clippings. Stop the engine completely by releasing the control handle. Make sure that the unit has come to a complete stop. To empty the grass bag proceed as follows:

- Lift discharge door and pull grass bag up and away from the mower to dispose of the grass clippings See Figure 11.

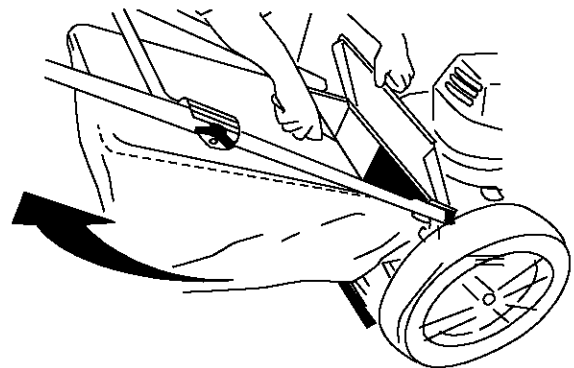


Figure 11

Adjusting Cutting Height

Refer to height adjustments section of this manual on page 15 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.

SECTION 8: MAINTAINING YOUR LAWN MOWER



WARNING: Always stop the engine and disconnect the spark plug wire before performing any maintenance work or adjustments on your lawn mower.

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.

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

- 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 and clean the underside of the deck with a suitable tool. Do NOT spray with water.
- 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 in any directions 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 Maintenance

- A list of key maintenance jobs required for good performance by the mower is given below. 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 the oil level before starting the engine every time.

- Service 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.
- 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 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.

Lubrication

Wheels

- Lubricate the wheels and bearings, if so equipped, 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 light oil.

Chute Deflector & Rear Discharge Door

- Lubricate the torsion spring and the pivot point on each end of the chute deflector and the rear discharge door using a light oil. This will prevent rusting and ensure that the deflector, which is a safety device, can always work properly.

Engine

- Follow the engine manual instructions and recommended schedule for lubricating engine components.

Transmission

- The transmission is pre-lubricated and sealed at the factory and does not require lubrication on a regular basis as part of maintenance. However, if you disassemble the transmission for any reason, refill with two ounces of Alvania grease (part # 737-0168) as part of reassembly.

SECTION 9: SERVICE

Blade Care

Periodically inspect the blade adapter and pulley 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 thick 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 bell washer which hold the blade-pulley assembly to the engine crankshaft. See Figure 12. Remove the assembly from the crankshaft.
- Remove the two bolts and lock nuts from the blade assembly.
- Remove the blade from the blade adapter and pulley.

To Replace Blade:

- Before reinstalling the blade-pulley assembly to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil or engine oil.
- Also lubricate the bolt holes, bolt and the inner surface of the nuts.
- Install the blade adapter on the pulley with the "star" away from the pulley. See Figure 12.

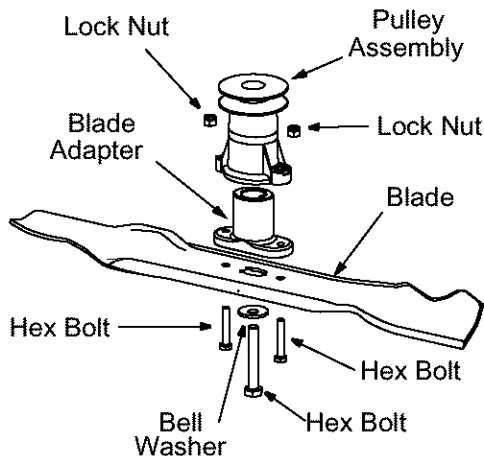


Figure 12

- Place the new blade on the blade adapter with the side marked bottom (or with part number) facing away from the adapter.

- Secure the blade to the assembly with two hex bolts and lock nuts. Tighten the hex bolts to the recommended torque. Refer to 'Blade Mounting Torque' section on this page.
- Install the blade assembly on the crankshaft. Secure with the hex bolt and bell washer (cupped side of washer to blade) and tighten to the recommended torque. Refer to 'Blade Mounting Torque' section on this page.

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 in the back 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 the blade while it is still 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.

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

Blade Mounting Torque:

Blade adapter bolts: 120 in.lbs. minimum, 150 in.lbs. maximum Center bolt: 450 in.lbs. minimum, 600 in.lbs. maximum.

Replacing Drive Belt

- Remove the two shoulder screws from on top of the deck which secures the front drive cover to the mower deck. See Figure 13.
- Remove the front drive cover from the unit by lightly pressing inward on the sides of the front drive cover. This will release the tabs that secure the front drive cover to the height adjuster brackets.
- Remove the idler and related hardware from the idler bracket using 7/16" wrench and socket. See Figure 13.
- Remove the belt from the transmission pulley as shown in Figure 14.
- Lift and stabilize the front of the deck.

- Loosen the center hex bolt and lower the blade and engine pulley until there is adequate clearance to move the belt past the belt keeper.
- Remove the belt from the engine pulley and around the blade. See Figure 14.
- Reassemble in reverse order with new belt (part # 754-0465). **NOTE:** Begin idler reassembly by inserting bolt up through the idler bracket hole. Adjust the drive clutch following instructions on page 14.

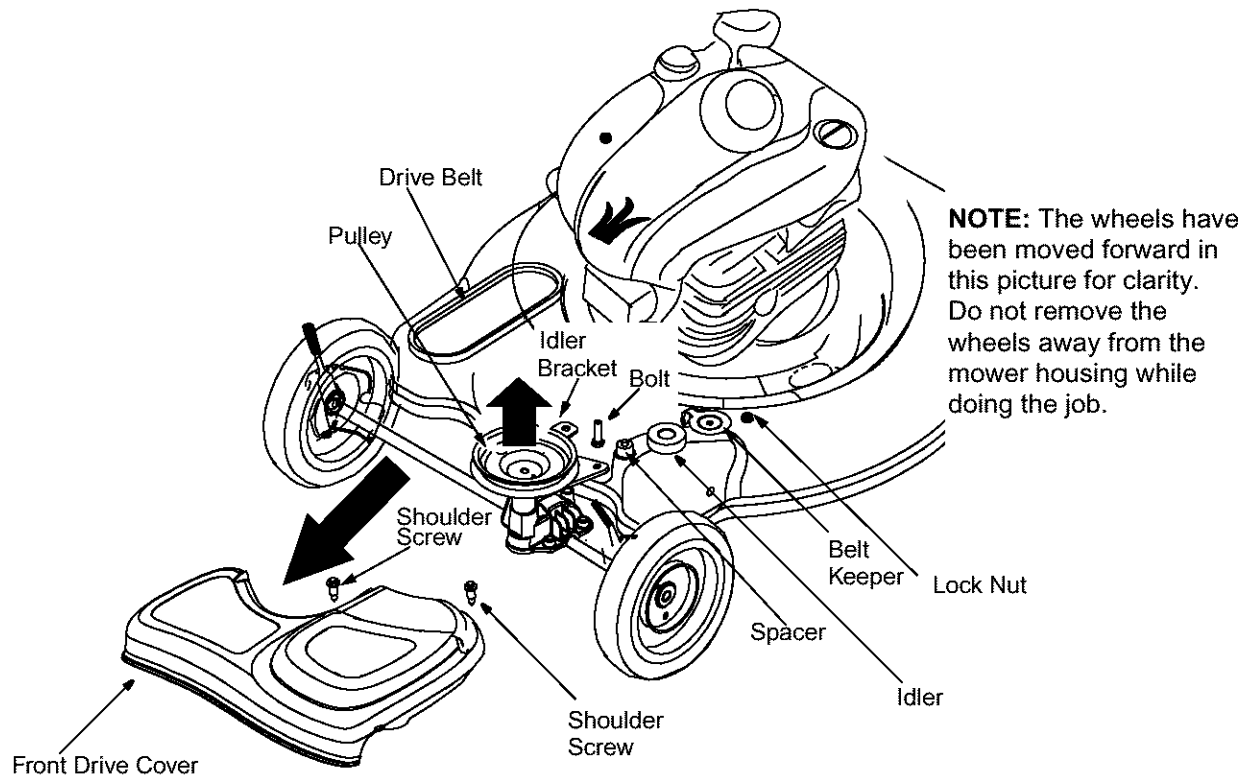


Figure 13

Adjusting Drive Clutch Control

- The drive clutch adjustment wheel is located on the drive clutch control handle housing and is used to tighten or loosen tension on the drive cable. Perform this adjustment if the following exists.
 - a. The mower does not propel itself with the drive clutch engaged.
 - b. 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 15 .

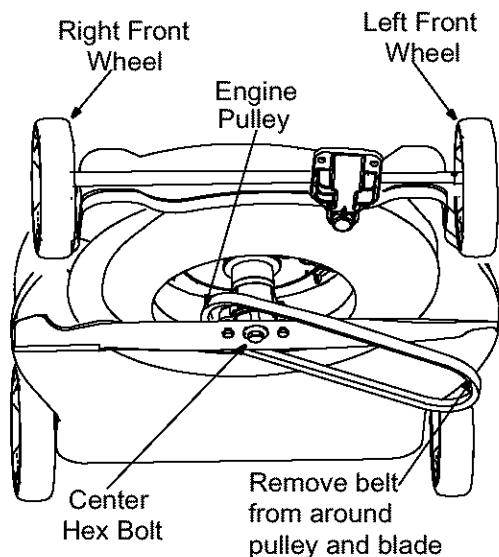


Figure 14

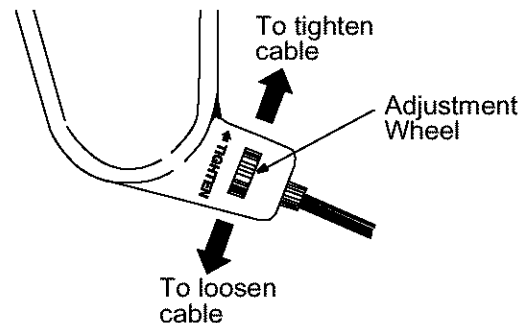


Figure 15

Adjusting 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.
- Remove the hairpin clips from the weld pins on the handle brackets. Refer to Figure 5. 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 16. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.

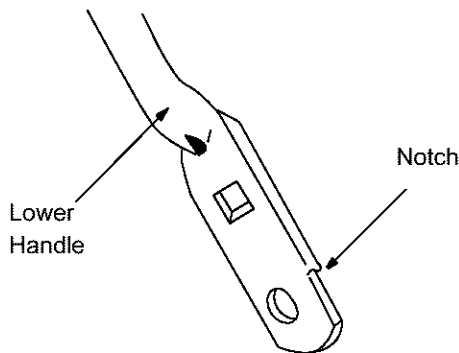


Figure 16

- Reassemble the upper handle to the lower handle.
- Place the hairpin clips in the inner holes of the weld pins and attach the starter rope as instructed in the Assembly section.

Adjusting 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.

An adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one location to another.

- Simply depress the lever towards the wheel and move the lever assembly to desired position. See Figure 17.
- For rough or uneven lawns, move the height adjustment handles to higher cutting height position.

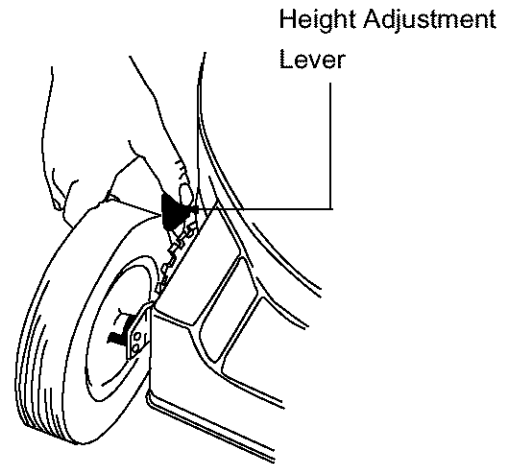


Figure 17

Adjusting Carburetor

If the engine is running rough, minor adjustments to the carburetor may be required to compensate for differences in fuel, temperature, altitude and load.

NOTE: A dirty air cleaner may cause an engine to run rough.

Make sure that the air cleaner is clean and attached to the carburetor before deciding to adjust the carburetor.

To adjust the carburetor, please follow the recommendations and instructions on carburetor adjustment in the engine manual.

WARNING: If any adjustments are made to the engine (e.g. carburetor) while the engine is running, keep clear of all moving parts. Be careful of heated surfaces like the muffler.

SECTION 10: 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 in the Maintaining your lawn mower section of this manual.
- Lubricate mower as instructed on page 12 of this manual.
- You can fold your mower's handle for convenient storage: Remove the starter rope from the rope guide; loosen the two hand knobs on the sides of the handle, and let the upper handle fold down to the rear. Move the hairpin clips to the outer hole in the weld pins on the handle mounting brackets. Spread the sides of the lower handle, and push it forward and down.
- Inspect and replace/sharpen blade, if required. Refer to the Service section of this manual for blade care instructions.

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, and debris from the cooling fins, air intake screen, levers, linkage and the exterior of the engine.

Other

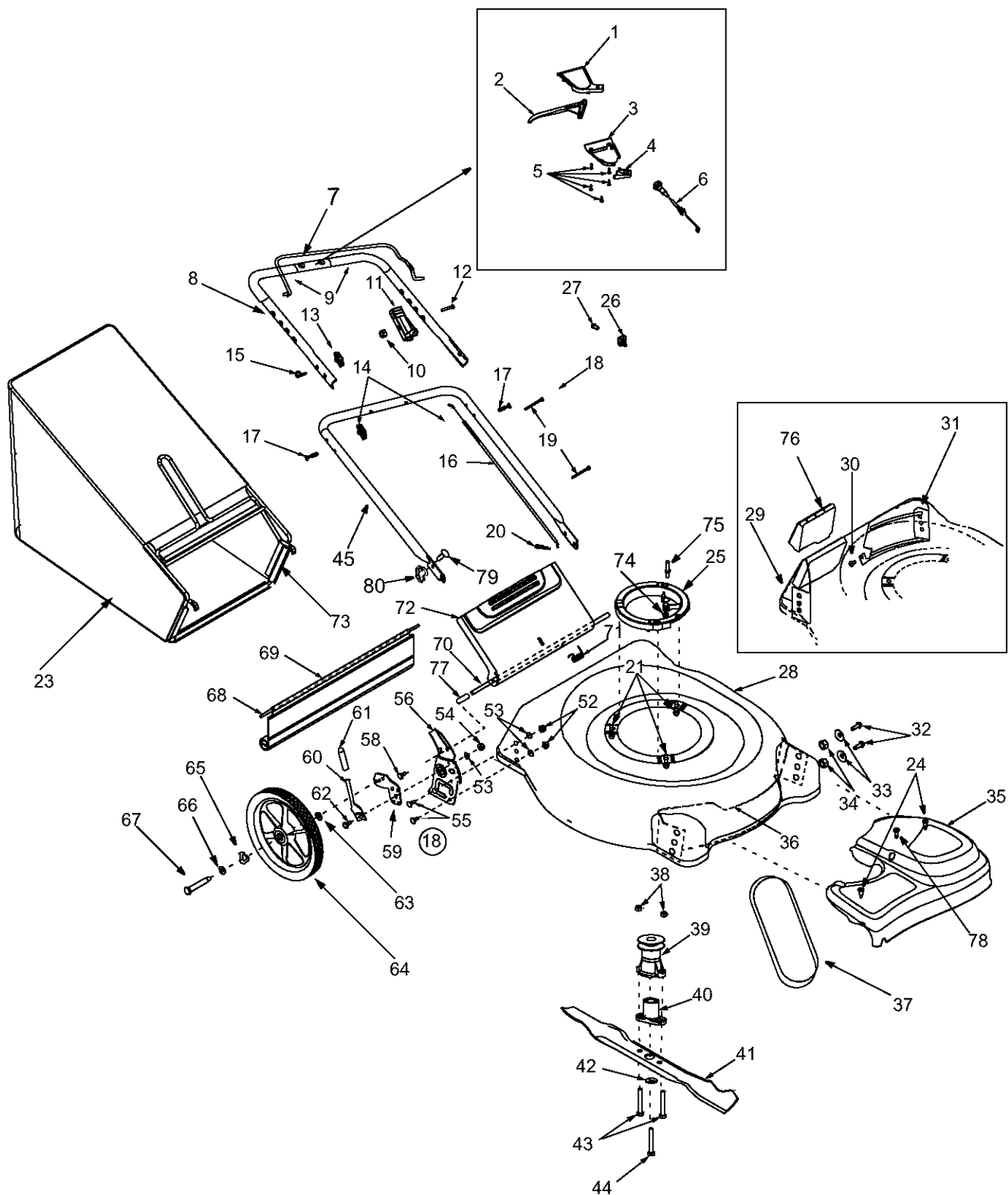
- Do not store gasoline from one season to another.
- Replace your gasoline can if it starts to rust. Rust and/or dirt in the gasoline will cause problems. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

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 11: 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 6. Engine flooded 	<ol style="list-style-type: none"> 1. Engage blade control handle 2. Connect wire to spark plug 3. Fill up tank with fresh gasoline 4. Clean fuel line 5. Clean, adjust gap, or replace 6. Wait a few minutes to restart, Do not prime.
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 service center
Mower will not mulch grass	<ol style="list-style-type: none"> 1. Engine speed too low 2. Wet grass 3. Excessively high grass 4. Dull blade 	<ol style="list-style-type: none"> 1. Wait until grass is dry to cut. 2. Mow once at a high cutting height, then mow again at desired height. 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. Reposition all wheels at same height. 2. Sharpen or replace blade.

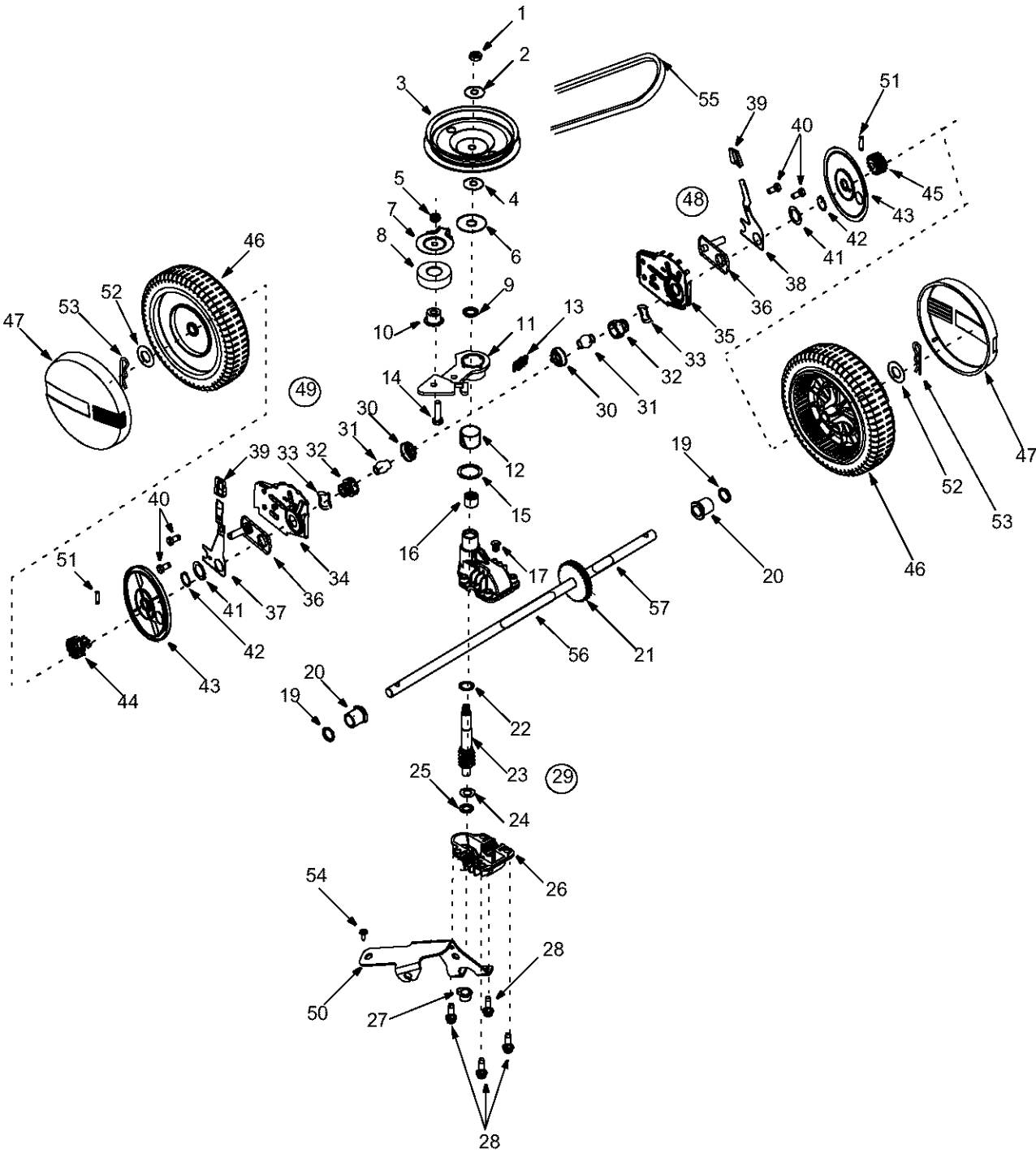
SECTION 12: PARTS LIST FOR MODEL 559K



MODEL 559K

Ref. No	Part No.	Description	Ref. No	Part No.	Description
1.	731-1057	Upper Drive Cover	39.	756-1146	Drive Pulley
2.	731-0620	Drive Lever	40.	748-0411	Blade Adapter
3.	731-1058	Lower Drive Cover	41.	742-0741	21" Mulching Blade
4.	731-1059	Mounting Cap	42.	736-0452	Flat Washer .516 x 1.5 x .134
5.	710-1667A	Screw # 10-16 x .625	43.	710-0606	Hex Screw 1/4-20 x 1.50
6.	746-0960	Drive Cable	44.	710-1257	Hex Screw 3/8-24 x 2.50
7.	747-0824	Control Lever	45.	749-0907A	Lower Handle
8.	749-0439B	Upper Handle (Incl. Ref. No. 9)	52.	712-0798	Hex Nut 3/8-16
9.	720-0294	Foam Grip, 9"	53.	736-0356	Bell Washer .39 I.D. x 1.38 O.D.
10.	712-0324	Hex Lock Nut, 1/4-20	54.	712-3005	Hex Flange Lock Nut 3/8-16
11.	746-0883	Throttle Housing	55.	710-0896	Hex Scr. w/Washer 1/4-14 x .625
12.	710-1270	Oval C-Sunk Screw 1/4-20 x 1.31	56.	682-3056	RH Handle Bracket
13.	720-0279	Handle Knob		682-3057	LH Handle Bracket (not shown)
14.	720-0276	Handle Knob	57.	736-0270	Bell Washer .265 x .75 x .062
15.	710-1205	Eye Bolt	58.	710-0599	Hex Screw TT 1/4-20 x .500
16.	746-0550	Control Cable, 39"	59.	17488A	RH Pivot Bar
17.	710-1174	Carriage Bolt 5/16-18 x 2.0		17489A	LH Pivot Bar (not shown)
18.	682-3058	RH Bracket Ass'y (Incl. Ref. 54, 56, 59, 60 & 62)	60.	732-0866	Height Adj. Lever
	682-3059	LH Bracket Ass'y (Not Shown)	61.	720-0312	Foam Grip
19.	726-0240	Cable Tie	62.	738-0507B	Shoulder Scr .500 Dia. x .434
20.	714-0104	Cotter Pin	63.	736-0105	Washer .401 x .870 x .063
21.	710-1007	Self-tapping Screw	64.	734-1860	Wheel, 14 x 2 Yellow (Link Trd.)
23.	664-0085	Grassbag w/ logo	65.	736-0182	Spring Washer .50 I.D. x 1.0 O.D.
24.	710-1650	Shoulder Screw # 12 -24	66.	736-0456	Flat Washer .510 x 1.373 x .04
25.	631-0075	Engine Spacer	67.	738-0481	Shoulder Screw
26.	751B213146	Clamp Casing	68.	732-0700	Wire
27.	710-1237	Hex Screw TT #10-32 x .625	69.	731-1236	Rear Trailing Shield
28.	782-0080	21" Rear Discharge Deck	70.	747-0996	Pivot Rod
29.	782-5004	RH Rear Baffle	71.	732-0809	Torsion Spring
30.	710-1017	Screw AB: 1/4-14: .625	72.	782-7599A	Rear Discharge Door
31.	782-5003	LH Rear Baffle	73.	747-0995A	Grasscatcher Frame
32.	710-0216	Hex Screw 3/8-16 x .75	74.	712-0271	Hex Nut
33.	736-0331	Bell Washer .39 x 1.13 x .062	75.	711-1293	Screw
34.	712-0798	Hex Nut 3/8-16	76.	782-5007A	Plastic Mulching Baffle
35.	731-1937	Transmission Cover (Yellow)	77.	750-0434	Spacer .375 x .50 x 1.02" Lg.
36.	782-5002	Front Baffle	78.	738-1002	Shoulder Screw 1/4-14
37.	754-0465	V-Belt, 3/8 x 35.68"	79.	710-0703	Carriage Bolt 1/4-20
38.	712-0324	Hex Nut 1/4-20	80.	712-0397	Wing Nut

MODEL 559K



MODEL 559K

Ref. No	Part No.	Description	Ref. No	Part No.	Description
1.	712-3025	Hex Jam Nut 5/16-24	30.	732-0708	Bearing Retainer
2.	736-0425	Bell Washer .325 x .930 x .045	31.	741-0604	Bearing Sleeve .50 I.D.
3.	756-1042	Pulley, 3.82 x .313 x .68	32.	748-0355	Bearing Support
4.	736-0425	Bell Washer .325 x .930 x .045	33.	736-0447	Wave Washer 1.5 x 1.0 x .029
5.	712-0896	Lock Nut 1/4-28	34.	782-0512B	RH Height Adj. Plate
6.	736-0406	Flat Washer .442 x 1.38 x .060	35.	782-0511A	LH Height Adj. Plate
7.	782-7598	Belt Keeper	36.	682-0509	Pivot Plate Assembly
8.	741-0124	Ball Bearing	37.	732-0706	RH Front Lever
9.	721-0457	Oil Seal	38.	732-0707	LH Front Lever
10.	750-1050	Flange Spacer	39.	720-0190	Knob
11.	682-0028	Idler Bracket Assembly	40.	710-0216	Hex Cap Screw 3/8-16 x .75
12.	741-0682A	Bearing Sleeve	41.	736-0474	Washer DD 1.5" O.D.
13.	732-0849A	Flat Washer .504 x .700 x .030	42.	716-0102	Snap Ring 1.0 dia.
14.	710-0299	Hex Cap Screw 1/4-28 x 1.00	43.	782-7551	Wheel Dust Cap
15.	736-0570	Flat Washer .865 x 1.145 x .030	44.	717-1534	Gear 14T RH FWD
16.	741-0699	Needle Bearing .438 x .625 x .500	45.	717-1533	Gear 14T LH FWD
17.	721-0325	Plug 1/4 x .437	46.	734-1866	Wheel, 8x2 Yellow (Link Trd.)
18.	618-0300A	Upper Housing		734-1870	Wheel, 8x2 Yellow (Bar Trd.)
19.	721-0329	Oil Seal .500 x .687 x .094	47.	731-1426	Hubcap: Yellow
20.	741-0673	Flange Bearing	48.	682-0512A	RH Height Adj. Complete
21.	611-0105	Output Shaft	49.	682-0511A	LH Height Adj. Complete
22.	736-0520	Flat Washer .504 x .700 x .030	50.	682-0030	Cable Idler Bracket
23.	717-1492	Pinion Shaft 10T	51.	715-0221	Dowel Pin
24.	736-0314	Thrust Washer .375 x .70 x .030	52.	736-3013	Flat Washer 1/2 x 1.00 x .063
25.	736-0569	Thrust Washer .388 x .625 x .062	53.	714-0101	Cotter Pin .08 x 1.42
26.	618-0299A	Lower Housing	54.	738-1002	Screw
27.	741-0672	Flange Bearing .378 x .531 x .370	55.	754-0465	Belt
28.	710-1276	Hex Screw w/Washer 1/4-20 x .750	56.	750-1165	Sleeve Spacer .52 I.D. x 10.1" Lg.
29.	618-0298A	Transmission Assembly (Includes Ref. # 1 to Ref. #30)	57.	750-1166	Sleeve Spacer .52 I.D. x 2.1" Lg.

MANUFACTURER'S LIMITED WARRANTY FOR:



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

MTD warrants this product against defects in material and workmanship 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 material 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 Products Inc. for use with the product(s) covered by this manual will void your warranty as to any resulting damages.

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear part 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 material or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires. Batteries are covered by a 90-day limited replacement warranty.

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, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD PRODUCTS INC by calling 1-800-800-7310 or writing to P.O. Box 368022, Cleveland, Ohio 44136-9722.

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. Please refer to the applicable manufacturer's warranty on these items.
- b. Log splitter pumps, valves and cylinders have a separate one year warranty.

- c. Routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments; and normal deterioration of the exterior finish due to use or exposure.
- d. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

No implied warranty, including any implied warranty of merchantability or 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 or guaranty, 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. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation 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 the 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 use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or 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.