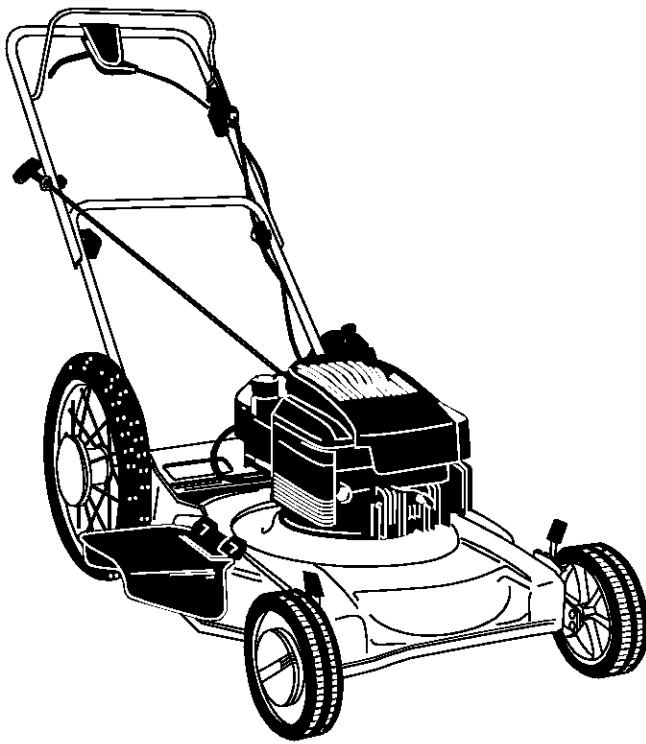




OPERATOR'S MANUAL

Model Series
230 and 520
22" SELF-PROPELLED
ROTARY MOWERS



(520 Series Shown)



IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

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

SECTION 1: FINDING YOUR MODEL NUMBER

This Operator's Manual is an important part of your new walk behind lawn mower. It will help you assemble, prepare and maintain your machine. Please read and understand what it says.

Before you start to prepare your walk behind lawn mower for its first use, please locate the model plate and copy the information from it in this Operator's Manual. The information on the model plate is very important if you need help from your dealer or the MTD customer support department.

- Every walk behind lawn mower has a model plate. You can locate it by standing behind the unit in the operating position and looking down at the rear of the deck between the rear wheels.
- The model plate will look like.

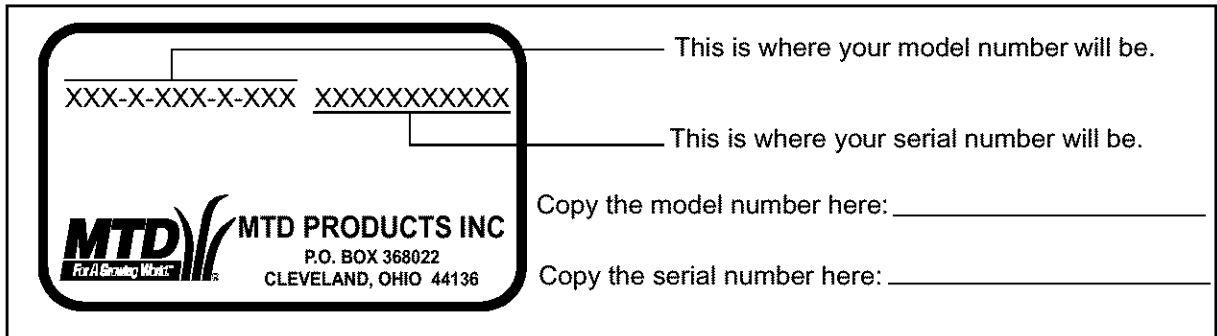


Figure 1

SECTION 2: CALLING CUSTOMER SUPPORT

- **LOCATE YOUR MODEL NUMBER AND SERIAL NUMBER** — Record this information in the space provided. To find your unit's specific model number and serial number, see SECTION 1: FINDING YOUR MODEL NUMBER.
- If you are having difficulty assembling this product or if you have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Support Department.
- Customer Support can be reached by dialing: **1- (330) 220-4MTD (4683)**
or
1- (800)-800-7310
- Please have your model number and serial number ready when you call.
- Although both numbers are important, you will be asked to enter only your **serial** number before your call can be processed.

SECTION 3: IMPORTANT SAFE OPERATION PRACTICES



WARNING: This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. read and follow all instructions in this manual before attempting to operate 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.

1. 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. Telephone 1-800-800-7310 for the name of your nearest dealer.

2. 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.

3. 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.

4. 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.

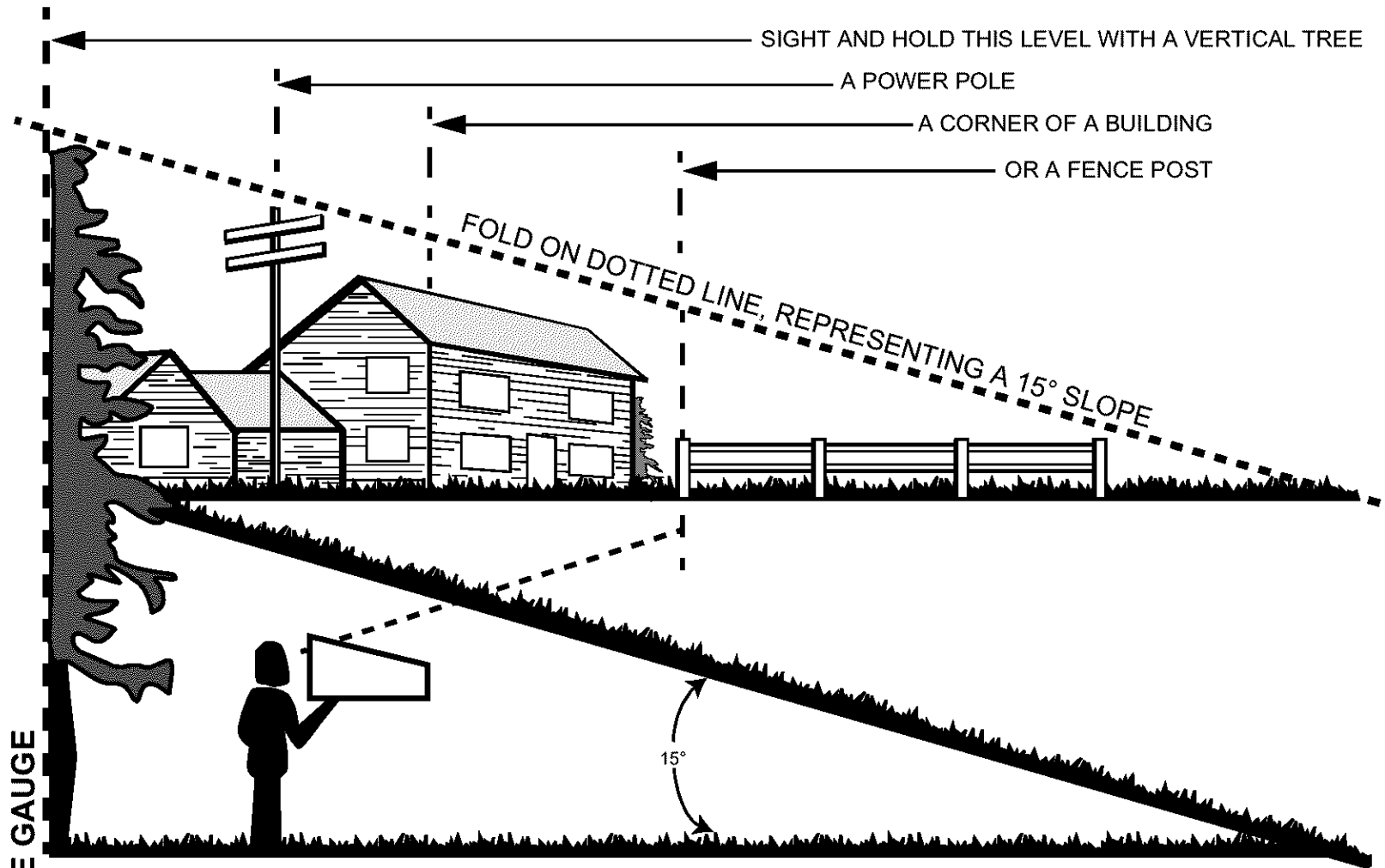


WARNING - YOUR RESPONSIBILITY: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.



Figure 2 Safety Labels Found On Lawn Mower

USE THIS PAGE AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.



SECTION 4: SLOPE GAUGE



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 5: 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 if included with unit (i.e., operator's manual, etc.).
- Make sure the cables are straight and not crimped while removing loose parts or the unit from the carton.
- 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.

TOOLS REQUIRED

Pair of Pliers (Not necessary, but helpful).

DISCONNECT SPARK PLUG WIRE

Before setting up your lawn mower, disconnect the spark plug wire from the spark plug, and ground it against the engine. See Figure 3.

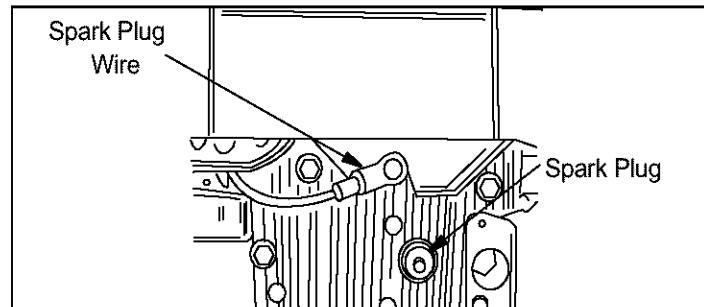


Figure 3

This operator's manual covers various mower models. Follow instructions which pertain to your unit only.

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

NOTE: Take notice of the parts listed in Figure 4. Knowledge of where specific parts and controls are will assist you as you read this manual. Reference to the right or left side of the mower is observed from the operating position.

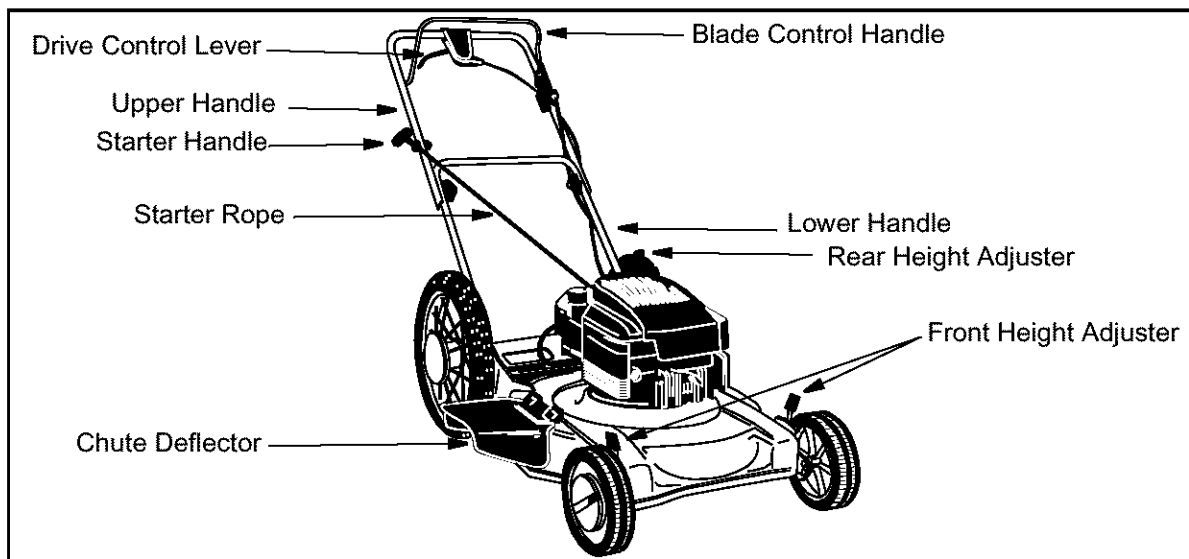


Figure 4

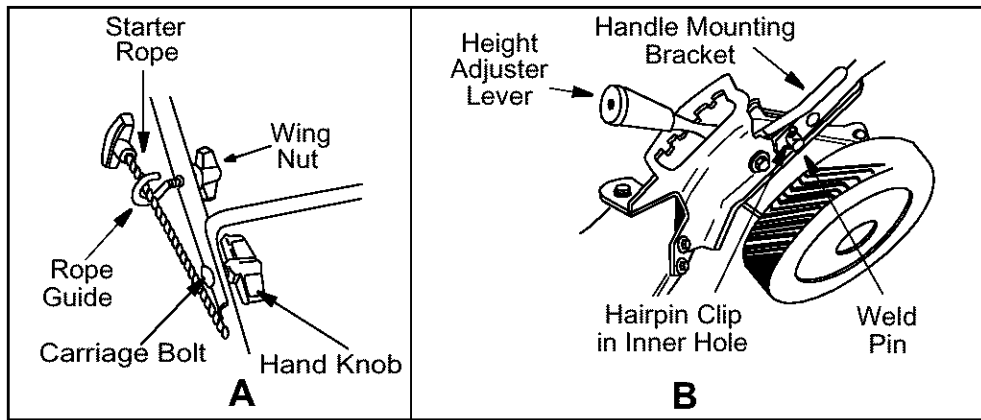


Figure 5

HOW TO SET UP YOUR LAWN MOWER

- Remove any packing material which may be between the upper and lower handles for shipping purposes.
- Move the height adjustment lever located near the left rear wheel to the highest position.
- Pull up and back on the upper handle to raise the handle into the operating position. You may have to spread the handle a little at an intermediate position and then lift the handle all the way up to its final position. Make certain the lower handle is seated securely into the handle mounting brackets. See Figure 5B.
- Tighten the hand knobs on each side of the handle. Make sure that the carriage bolts are seated properly into the handle. See Figure 5A.

NOTE: FOR SERIES 230 UNITS ONLY

Your mower is shipped with the handle in the higher height position. If you wish to lower the height of the handle, refer to the Adjustment Section at this time.

ALL UNITS

- Remove the hairpin clips from the outer hole in the weld pins on the handle mounting brackets.
- Using a pair of pliers, squeeze one leg of the lower handle against the handle mounting bracket. Insert the hairpin clip into the inner hole on the weld pin. Repeat on other side. See Figure 5B.
- The rope guide is attached to the right side of the upper handle. Loosen the wing nut which secures the rope guide. See Figure 5A.
- 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 starter rope into the rope guide. Tighten the wing nut. See Figure 5A.

CHUTE DEFLECTOR

The chute deflector on your mower is held in an upright position by a retainer for shipping purposes only.

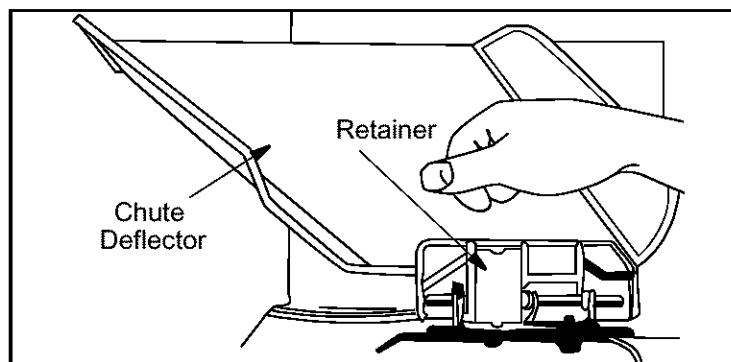


Figure 6

- To remove this retainer, move the spring-loaded chute toward the engine by pushing above the retainer.
- Remove the retainer and carefully lower the chute into operating position, keeping fingers out of the way. See Figure 6.



WARNING: The shipping chute retainer must be removed and discarded before operating the mower.

MULCHING BAFFLE (OPTIONAL)

A mulching kit is available for the mowers shown in this manual. The part number for the mulch kit is OEM-190-115, and can be acquired through your local MTD retailer, service center, or by calling (800) 800-7310. If your mower is already equipped with a mulching baffle, install as follows:

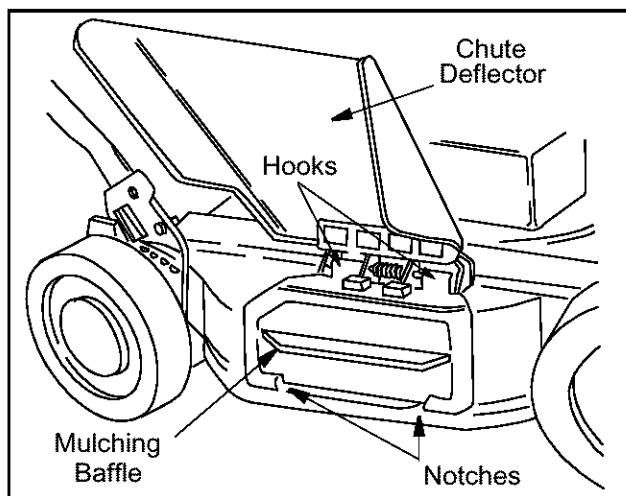


Figure 7

- Lift the chute deflector on the mower. Slide the notches in the bottom of the mulching baffle over the lip of the discharge opening. See Figure 7.
- Push the hooks on the top of the baffle until they snap over the hinge on the discharge chute. Release the chute deflector.

FINAL ASSEMBLY

Make certain all nuts and bolts are tightened securely.

SECTION 6: CONTROLS

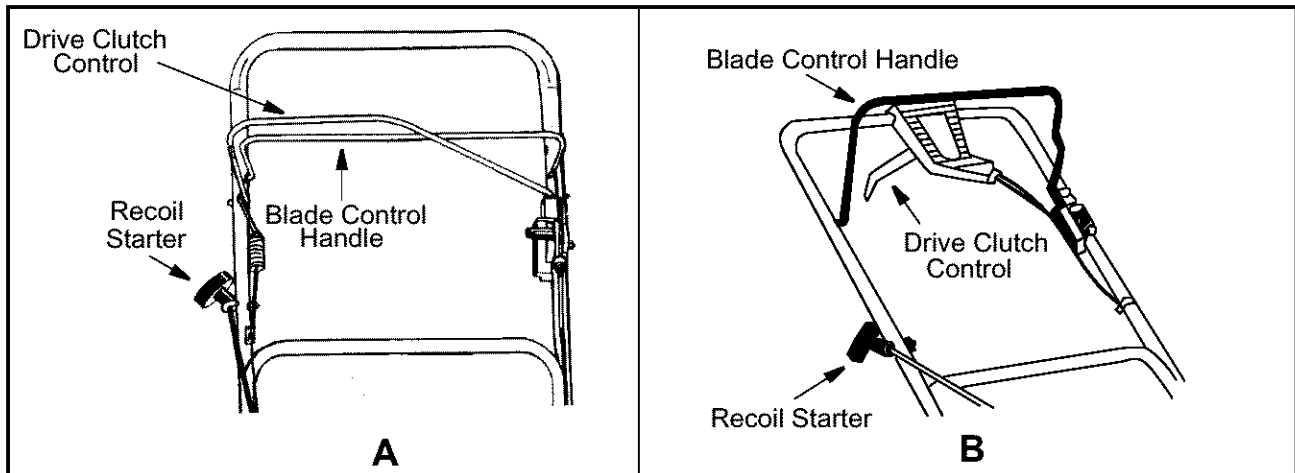


Figure 8

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. See Figure 8. The blade control handle must be depressed in order to operate the unit. Release the blade control handle to stop the engine and blade.



WARNING: The blade will be rotating whenever the engine is running.

OPTIONAL THROTTLE CONTROLS

Your unit will be equipped with one of three optional throttle controls. Follow the instructions which pertain to your unit.

- The throttle control is located on the left side of the upper handle. It is used to regulate engine speed.
- The throttle control is located on the engine. It is used to regulate engine speed.
- The engine is equipped with a constant speed throttle which is set at full throttle for maximum engine and cutting performance.



WARNING: The throttle control can not be used to stop the engine. If your throttle control is located on the engine, do not adjust the throttle control with the engine running.

RECOIL STARTER

The recoil starter handle is attached to the handle. See Figure 8. Stand behind the unit in the operating position to start the unit.

DRIVE CLUTCH CONTROL

Squeeze the drive clutch control against the upper handle to engage drive. Release the drive clutch control to slow down when negotiating an obstacle, making a turn or stopping. There are two different styles of drive clutch controls that are available. See Figure 8.

SECTION 7: OPERATION



WARNING: Keep hands and feet away from the chute area on cutting deck. See Figure 2 in the Safety Section.



WARNING: The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields. We recommend wide vision safety mask for over spectacles or standard safety glasses.

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

GAS AND OIL FILL-UP

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



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

BEFORE STARTING

- 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.
- Before each use, check for proper drive clutch operation by performing the following procedure before starting the engine.

With the drive clutch control released, push mower forward. It should move freely. Pull mower backward. It should move with only a small amount of resistance.

If the rear wheels tend to lock up, the clutch may not be releasing completely. Do not start the engine until corrections have been made.

Check the control cable for severe bend, kinks or binding, or grass build-up around the belt. Correct and adjust as required.

Refer to instructions under "Drive Clutch Control Adjustment" in the Adjustment Section for loosening the drive belt.

TO START ENGINE AND ENGAGE BLADE



WARNING: When starting the unit for the first time, face the mower against a solid object such as a wall, fence, etc. Start the unit, and if it shows any signs of motion with the drive clutch control disengaged, shut the engine off immediately.

- Move the throttle control lever (if equipped) to the full throttle position (rabbit).
- If engine is equipped with a primer, prime engine as instructed in the separate engine manual packed with your unit. Normally, the primer requires three full pumps when the temperature is over 55°F and five pushes to the primer when it is colder.
- Standing behind the unit, depress the blade control handle and hold it against the upper handle.
- Grasp starter handle and pull the rope out slowly until the engine reaches the start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly. See Figure 8.
- Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle. Return it slowly to the rope guide. See Figure 8.

TO STOP ENGINE AND BLADE

- Move throttle control lever (if equipped on the handle) to the SLOW position (turtle).
- Release the blade control handle to stop the engine and blade.



WARNING: The blade continues to rotate for a few seconds after the engine is shut off.

- Disconnect the spark plug wire and ground it against the engine to prevent accidental starting while equipment is unattended.

USING YOUR ROTARY MOWER

Be sure that lawn is clear of stones, sticks, wire, or other objects which could damage the 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. Ground speed should be adjusted to the condition of the lawn.

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 the 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 cut in the fall as long as there is growth.

This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of bagging the cut grass.



WARNING: If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired. See Safety labels in Figure 2.

SECTION 8: ADJUSTMENTS



WARNING: Do not at any time make any adjustment to lawn mower without first stopping engine and disconnecting spark plug wire.

CUTTING HEIGHT ADJUSTMENT

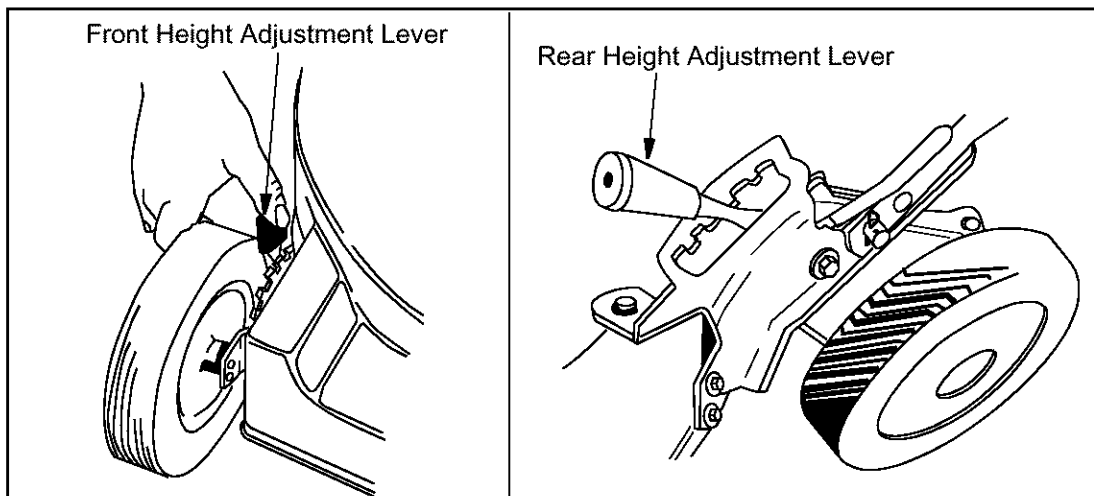


Figure 9

An adjusting plate and thumb lever at each front wheel provides cutting height adjustment. A single lever near the left rear wheel adjusts both rear wheels simultaneously. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one position to another. Simply depress the lever towards wheel and move wheel and lever assembly to desired position. See Figure 9.

HANDLE HEIGHT ADJUSTMENT

(230 series mowers only)

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. Press outward on the legs of the lower handle, and remove it from the mower.

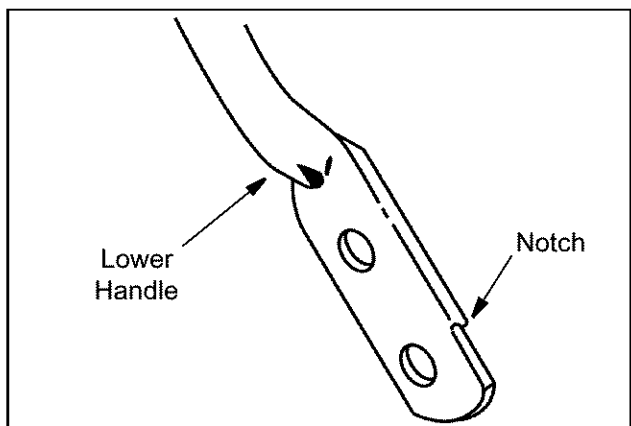


Figure 10

- Turn the lower handle around so the notches on the bottom of the lower handle are facing forward as shown in Figure 10.
- Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.
- Reassemble the upper handle.
- Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Set-Up Instructions.

DRIVE CLUTCH CONTROL ADJUSTMENT

Adjust the drive clutch control if:

- The mower self-propels with the drive clutch control disengaged.
- The mower does not self-propel with the drive clutch control engaged.
- The drive belt is slipping (unit hesitates while engine maintains the same speed).

A. Style 1 Controls:

- Use the adjustment wheel located in the clutch control housing to tighten or loosen the drive belt. See Figure 11A.
- You can use the adjustment wheel to also determine the position in which the drive clutch control is engaged. If it is more comfortable to have the drive engaged with the lever further away from the handle, tighten the drive belt.

B. Style 2 Controls:

To adjust the tension on the belt, first adjust the cable at the cable bracket on the handle. Proceed as follows:

- Engage the drive clutch control handle (squeeze handle against the upper handle). Measure the spring on the drive clutch cable. It should measure approximately 2-1/4 inches long as shown in Figure 11B, inset.
- If adjustment is necessary, loosen the screw which secures the cable bracket to the upper handle. The cable bracket is slotted, slide it up or down the handle as necessary to achieve the 2-1/4 inch measurement.
- If the measurement can not be achieved in the previous step, unhook the Z end of the spring from lower hole and insert into the higher adjustment hole.
- Check the spring length as instructed in step one.

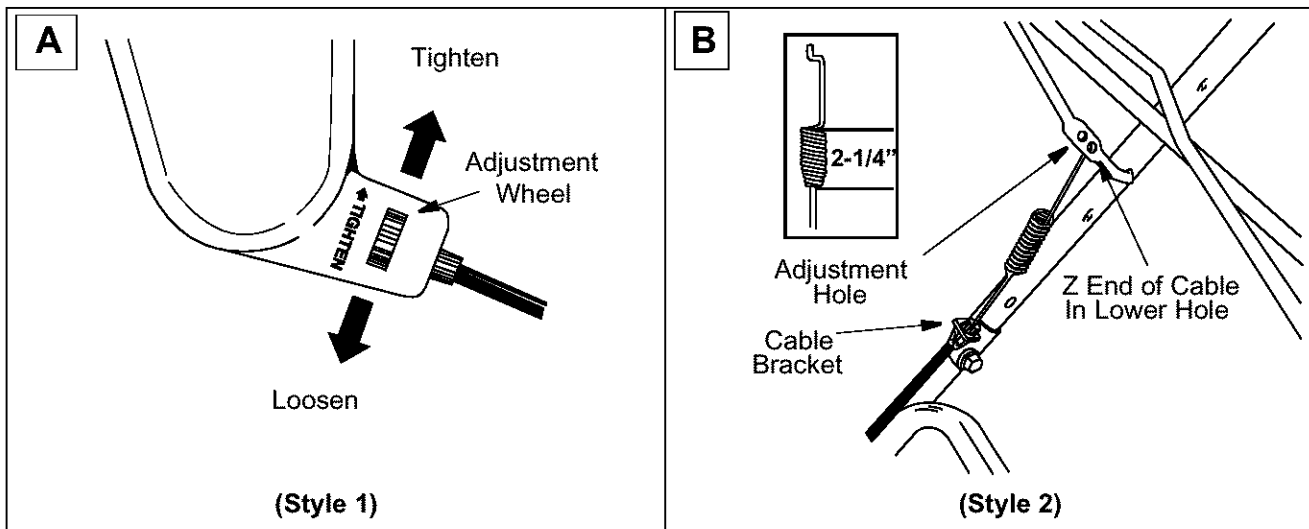


Figure 11

CARBURETOR ADJUSTMENTS



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

To adjust carburetor, refer to the separate engine manual packed with your mower.

NOTE: A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor.

SECTION 9: MAINTENANCE

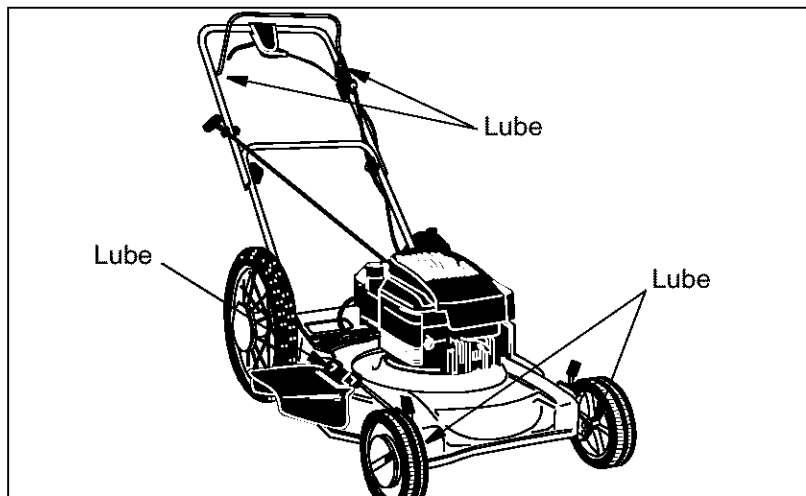


Figure 12

LUBRICATION



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

Blade Control

Lubricate the pivot points on the blade control handle and the brake cable at least once a season with light oil. See Figure 12. The blade control must operate freely in both directions.

Chute Deflector

Lubricate the torsion spring and pivot point periodically with light oil to prevent any rust or binding. Deflector must work freely.

Wheels

If your lawn mower has ball bearing wheels, lubricate 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.

Engine

Follow engine manual for lubrication instructions.

Transmission

The transmission is pre-lubricated and sealed at the factory. It does not require checking. If disassembled for any reason, fill with 2 ounces of Alvania grease, part number 737-0168.



WARNING: Be sure to disconnect and ground the spark plug wire before performing any repairs or maintenance.

CUTTING BLADE



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

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

Sharpening Blade:

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. We recommend that the blade be always removed from the adapter for the best test of balance.

Before reassembling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil (or engine oil). Also lubricate the crankshaft bolt.

Replacing Blade

NOTE: If the adapter is keyed, make sure that the key in the adapter is aligned with the key slot on the crankshaft.

- Place the two pulleys, the flat washer, the spring washer and the spacer on the engine crankshaft. See Figure 13.

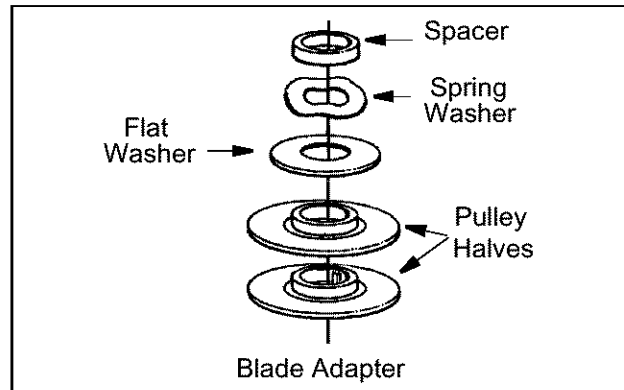


Figure 13

- Install the blade adapter on the crankshaft with the “star” away from the engine. See Figure 14.

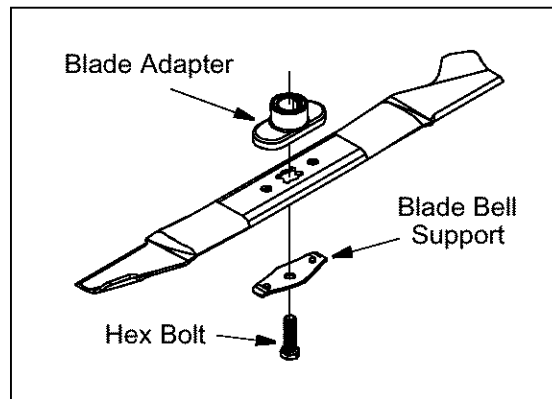


Figure 14

- Place the blade with the side marked bottom (or with part number) facing away from the adapter.
- Place the blade bell support over the blade, aligning the tabs in the holes of the blade with the hole in the bell support and insert the hex bolt through the blade assembly. Refer to Figure 14 for the correct order of assembly.
- Tighten the hex bolt according to the blade mounting torque mentioned below.

BLADE MOUNTING TORQUE

Center Bolt: 450 in. lbs. min., 600 in. lbs. max.;

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

DECK

The underside of the mower deck should be cleaned after each use to prevent a buildup of grass clippings, leaves, dirt or other matter. If this debris is allowed to accumulate, it will invite rust and corrosion, and may cause an uneven discharge of grass clippings.

The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected, the fuel tank is empty or sealed, and the air filter and carburetor are away from the ground).

ENGINE

Refer to the separate engine manual for engine maintenance instructions.

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

BELT REPLACEMENT

Disconnect the spark plug wire and ground it against the engine.

- Drain the fuel tank or place a piece of plastic beneath the cap to prevent gasoline leakage.
- Remove the transmission belt cover by removing the three bolts. See Figure 15.
- Tip the mower back on its side with the air filter side away from the ground. Block securely.

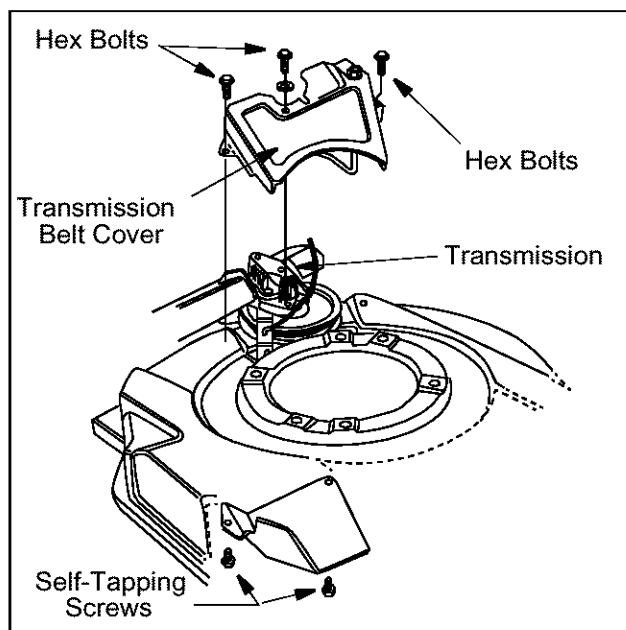


Figure 15

- Remove the center bolt which secures the blade to the crankshaft. See Figure 14.
- Remove the blade bell support, the blade, and the blade adapter, and the pulley half. See Figure 13. Remove the belt.
- Using a 3/8" wrench, remove the two self-tapping screws which hold the inside belt cover, and remove the cover. See Figure 15.
- Remove the belt from between the idler pulley and the belt guard on the idler pulley bracket.
- Remove the belt from the transmission pulley.
- Push the idler pulley up and out of the way. See Figure 16.
- Slide the belt in from the rear of the deck, and place it around the transmission pulley.

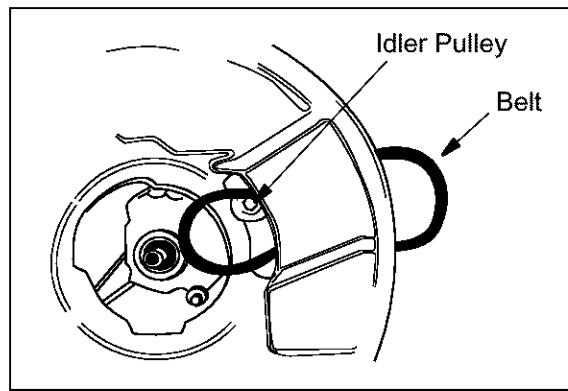


Figure 16

- Release the idler pulley so that it falls down into position. Slide the belt in between the idler pulley and the belt cover on the idler pulley bracket. See Figure 17.
- Lightly grease the crankshaft. Place the belt between the two pulley halves, and reassemble the blade adapter and the blade.

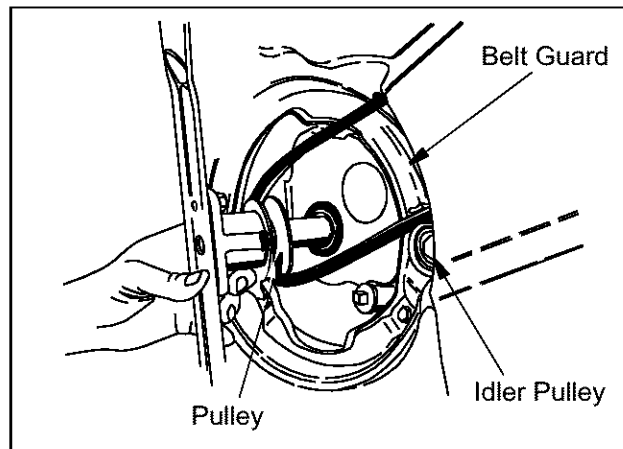


Figure 17

- Reassemble the transmission belt cover. Make sure to maintain the correct order while reassembling the blade, the blade adapter, and the pulleys, the washers, and the spacer. Refer to Figure 13.

NOTE: When reassembling the transmission belt cover, make sure that the belt cover is approximately 1/8" away from the belt. Also make sure to tighten all nuts and bolts securely. If you had put plastic under the gas cap before tipping the unit, remove it now.

SECTION 10: OFF-SEASON STORAGE

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

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

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

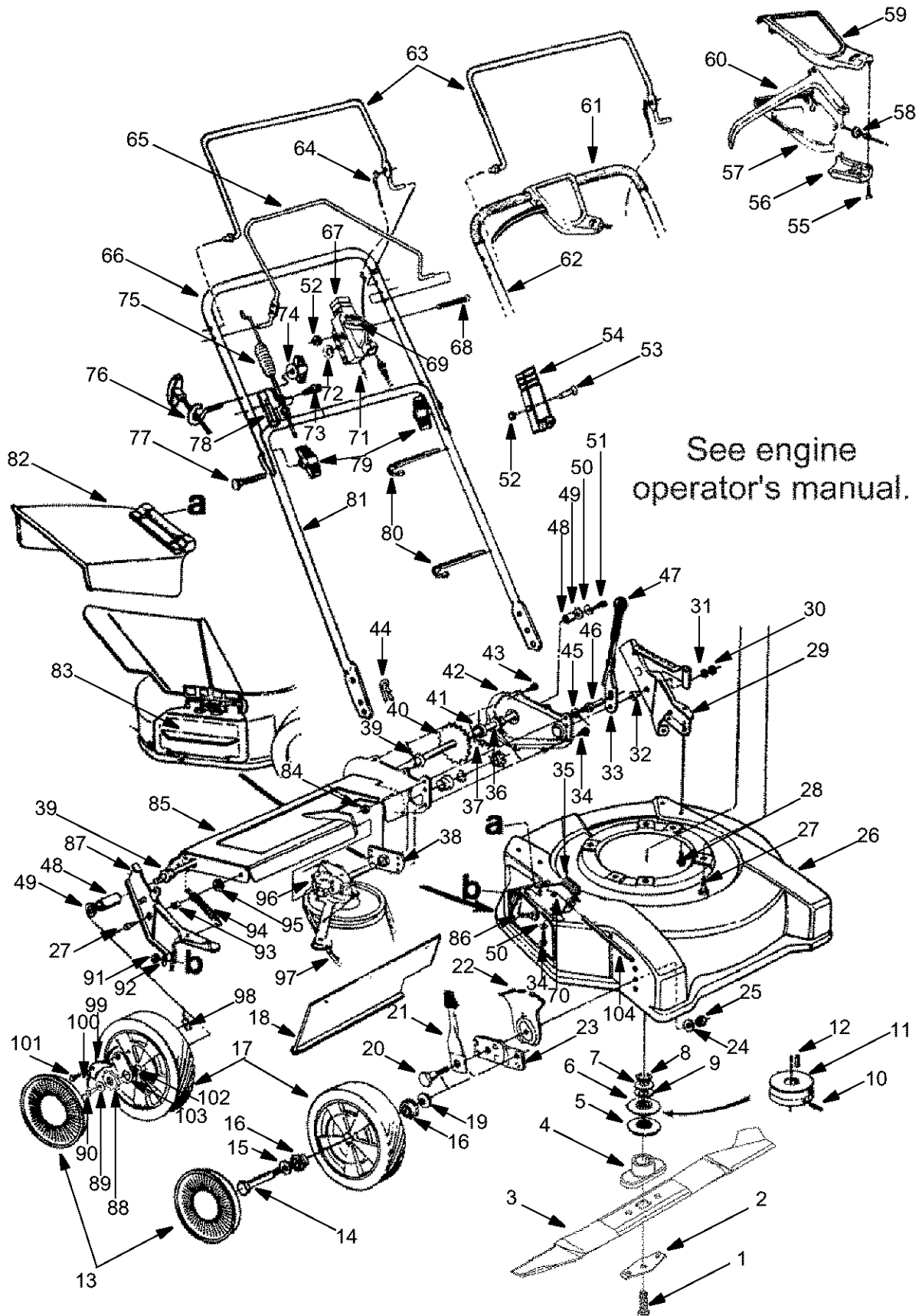
SECTION 11: TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Actions
Engine fails to start	Blade control handle disengaged. Spark plug wire disconnected. Dirty aircleaner. Primer button not depressed. Throttle control lever not in correct starting position (if so equipped). Fuel tank empty or stale fuel. Blocked fuel line (if so equipped). Faulty spark plug. Engine flooded.	Engage blade control handle. Connect wire to spark plug. Refer to the engine manual packed with your unit. Refer to the engine manual packed with your unit. Move throttle lever to FAST or START position. Fill tank with clean fresh gasoline. Fuel will not last over thirty days unless a fuel stabilizer is used. Clean fuel line. Clean, adjust gap or replace. Refer to the engine manual packed with your unit.
Engine runs erratic	Unit running in START position. Spark plug wire loose. Blocked fuel line (if so equipped) or stale fuel. Vent in gas cap plugged. Water or dirt in fuel system. Dirty air cleaner. Carburetor out of adjustment.	Move throttle lever to FAST position. Connect and tighten spark plug wire. Check spark plug for fouling. Clean fuel line; fill tank with clean, fresh gasoline. Fuel will not last over thirty days unless a fuel stabilizer is added. Clear vent or threads or replace. Drain fuel tank. Refill with fresh fuel. Refer to the engine manual packed with your unit. Refer to the engine manual packed with your unit.
Engine overheats	Engine oil level low. Dirty air cleaner. Air flow restricted. Carburetor not adjusted properly.	Fill crankcase with proper oil. Refer to the engine manual packed with your unit. Stop engine and disconnect spark plug wire. Remove blower housing and clean. Refer to the engine manual packed with your unit or see an authorized service dealer.*
Occasional skip (hesitates) at high speed	Spark plug gap too close. Carburetor idle mixture adjustment improperly set.	Adjust gap to .030". Refer to the engine manual packed with your unit.
Idles poorly	Spark plug fouled, faulty or gap too wide. Carburetor improperly adjusted. Dirty air cleaner.	Reset gap to .030" or replace spark plug. Refer to the engine manual packed with your unit. Refer to the engine manual packed with your unit.
Excessive vibration	Cutting blade loose or unbalanced. Bent cutting blade.	Tighten blade and adapter. Balance blade. See an authorized service dealer.
Mower will not mulch grass	Engine speed too low. Wet grass. Excessively high grass.	Set throttle between 3/4 and full throttle. Do not mow when grass is wet; wait until later to cut. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath (1/2 width).
Uneven cut	Wheels not positioned correctly. Dull blade.	Place all four wheels in same height position. Sharpen or replace blade.
Wheels will not propel**	Belt not installed properly. Debris clogging drive operation.	Check belt for proper pulley installation and movement. Clean out debris.

**Self-propelled models only

Note: For repairs beyond the minor adjustments above, contact your local authorized service dealer.

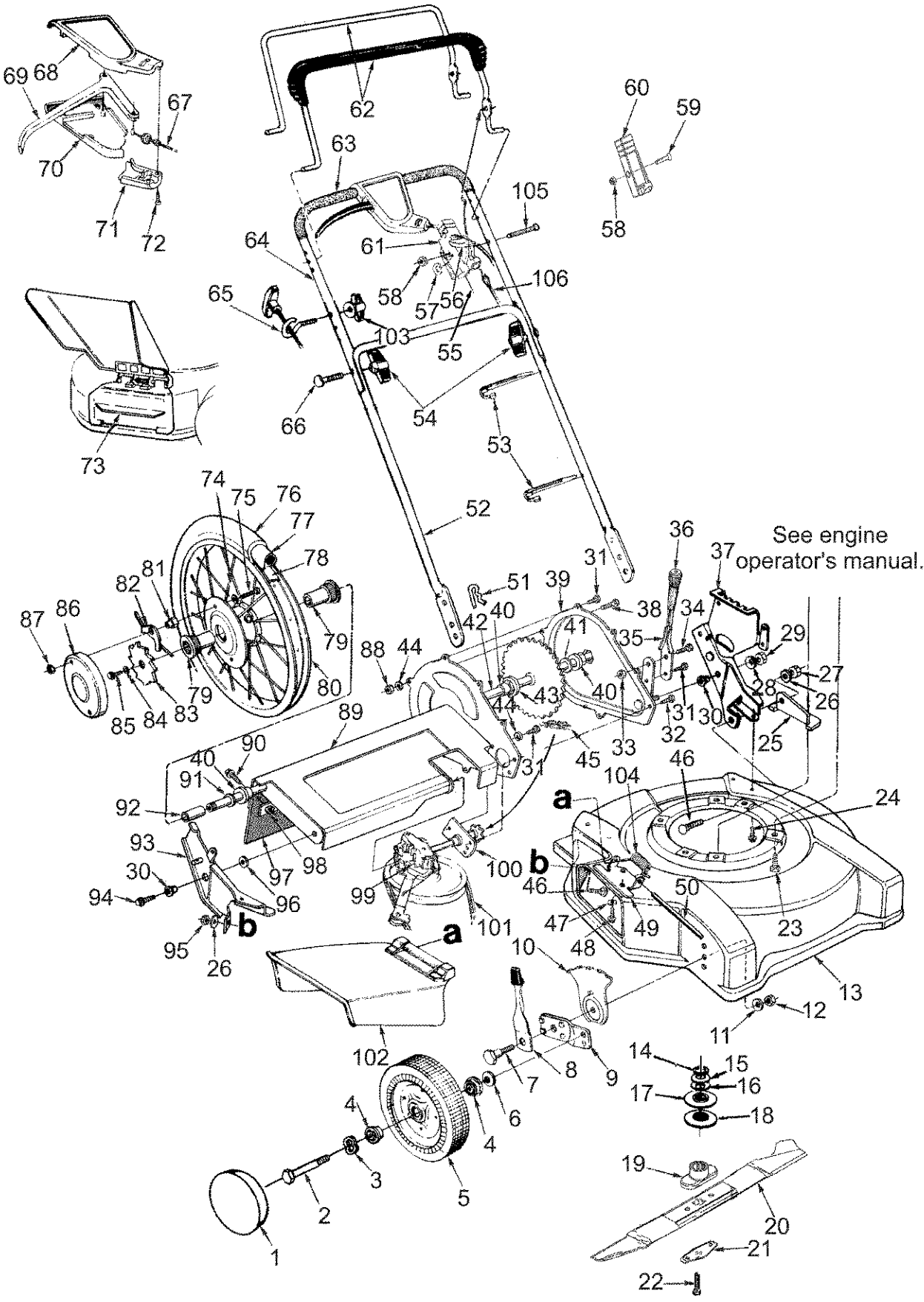
Model Series 230



Model Series 230

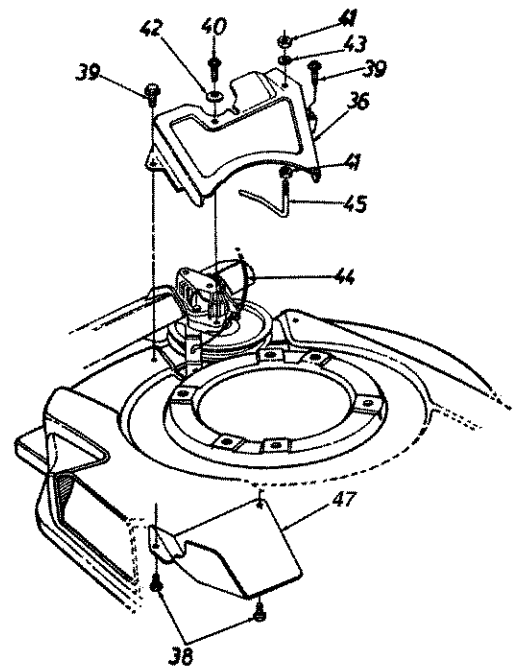
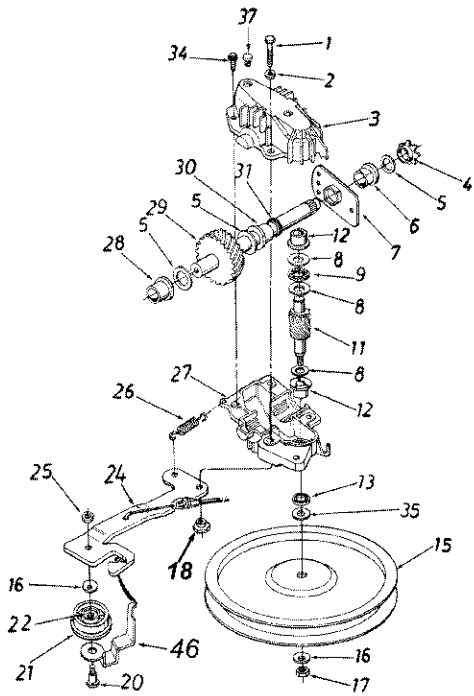
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-1044	Hex Bolt 3/8-24 x 1.5" Lg.	53	710-1270	Machine Screw 1/4" x 20
2	736-0524A	Blade Bell Support	54	746-0883	Cable Housing w/o Throttle
3	742-0642	22" Blade	55	710-1667	Screw #10-16 x .625"
	742-0742	Mulching Blade (Optional)	56	731-1059	Mounting Cap
4	748-0376C	Blade Adapter w/star	57	731-1058	Control Cover-Lower Half
	753-0588	Blade Adapter Kit	58	746-0710A	S.P. Cable (Single Bail)
5	756-0961	Lower Pulley Half	59	731-1057	Control Cover-Upper Half
6	756-0962	Upper Pulley Half	60	731-0620	Control Lever
7	736-0513	Spr. Wash. .89 I.D.	61	720-0294	Foam Grip (2 Required)
8	748-0358	Crankshaft Spacer	62	749-0539C	Upper Handle (Single Bail)
9	736-0514	FI-Wash. .885 I.D.	63	747-0824	Control Handle Assembly (Std.)
10	710-0497	Set Scr. #10-32 x .25" Lg. (234)	64	746-0550	Control Cable 39" Lg.
11	756-0554	Keyed Pulley (234)	65	747-0854	S.P. Bail Ass'y.
12	714-3009	Sq. Key, Square, 3/16 x 1/2 (234)	66	749-0538C	Upper Handle (Dual Bail)
13	720-0249	Hub Cap, Euro, Grey 3-1/2" Dia.	67	646-0875	Throttle Body (optional)
14	738-0102	Shld. Bolt .498" Dia. x 1.45"	68	710-0605	Oval C-Sunk Screw (optional)
15	736-0504	Wave Wash. .51" I.D. x .78"	69	746-0876	Throttle Lever
16	741-0484	Wheel Bearing (optional)	70	17032	Adapter Plate
17	634-0020	Wheel Assembly	71	746-0843	Throttle Cable 55" Lg. (optional)
18	731-1483	Rear Flap	72	736-0501	Spring Washer .66" I.D.
19	736-0105	Bell-Wash. .38" I.D. x .88"	73	710-0726	Hex Wash. AB-Tap Scr. 5/16 x .75" Lg.
20	738-0507B	Shld. Bolt .5" Dia. x .357	74	720-0279	Handle Knob 1/4-20 Thd.
21	14832	Spring Lever Ass'y. w/Knob	75	746-0594	Drive Cable-41.5" Lg. (Dual Bail)
	720-0190	Knob Only	76	710-1205	Rope Guide
22	15261A	Height Adj. Plate	77	710-1174	Curved Hd. Bolt 5/16-18 x 2"
23	15262B	Pivot Bar	78	16309A	Cable Bracket
24	736-0356	Bell Wash. .39 I.D. x 1.38 O.D.	79	720-0276	Hand Knob
25	712-0798	Hex Nut 3/8" x 16	80	726-0240	Cable Tie
26	682-0001A	22" Deck Ass'y.	81	749-0928	Lower Handle
27	710-0654A	Hex L-Wash. Hd. Scr. 3/8-16	82	731-1034	Chute Deflector Ass'y.
28	710-0607	Hex Wash. Hd. B-Tap Scr. 5/16-18		731-1035	Chute Deflector Only
29	16137C	L.H. Handle Wheel Brkt. Ass'y.	83	731-1386A	Mulching Baffle (Optional)
30	712-0296	Hex Patch L-Nut 3/8-24 Thd.	84	712-0711	Hex Jam Nut 3/8-24 Thd.
31	736-0300	FI-Wash. .385" I.D. x .87"	85	17055B	Chain-Axle Ass'y.
32	750-0624	Shld. Spacer .5" Dia.	86	710-0260	Carriage Bolt 5/16-18 x .62" Lg.
33	732-0726	Height Adj. Lever	87	16136C	R.H. Handle Wheel Brkt. Ass'y.
34	710-0599	Hex Self-Tap Scr. 1/4-20 x .5"	88	16855	Ratchet Plate
35	732-0593	Torsion Spring	89	736-0270	Bell Washer .265 ID x .75
36	741-0324	Hex Flange Bearing	90	710-0751	Cap Screw HH 1/4-20 x .620
37	713-0353	#48 Chain .5" Pitch x 30 Links	91	736-0119	L-Wash. 5/16" I.D.
38	16500A	Hex Bearing Cup	92	736-0242	Bell-Wash. 5/16" I.D.
39	741-0522	Hex Flange Bearing	93	750-0736	Spacer .383" I.D. x .503"
40	738-0719A	Rear Shaft Ass'y. 21.94" Lg.	94	732-0481	Ext. Spring .5" O.D. x 3.8" Lg.
41	736-0160	FI-Wash. .531" I.D. x .93"	95	736-0258	FI-Wash. .385" I.D. x 1" O.D.
42	17053A	Chain Cover	96	717-0417B	Transmission Comp
43	710-0653	Hex Tap Scr. 1/4 x .38" Lg.	97	754-0369	"V"-Belt
44	714-0104	Hairpin Clip	98	712-0414	Weld L-Nut 1/4-20 Thd.
45	736-0169	L-Wash. 3/8" I.D.	99	748-0381	Pawl-R.H.
46	711-0805	Shld. Pin 3/8-24 x 1.43" Lg.		748-0188B	Pawl-L.H. (Not Shown)
47	720-0223	Grip	100	10622B	Spring-Nylon
48	748-0190	Spacer .513" I.D. x .703"	101	738-0137A	Shld. Scr. .342" Dia. x .268"
49	736-0160	FI-Wash. .531" I.D. x .93"	102	741-0484	Sleeve Brg. 1/2" I.D.
50	736-0270	Bell-Wash. 1/4" I.D.	103	16855	Pawl Plate
51	710-0751	Hex Bolt 1/4-20 x .62" Lg. (Grade 5)	104	747-0710	Hinge Pin
52	712-0324	Hex L-Nut 1/4-20 Thd.			

Model Series 520



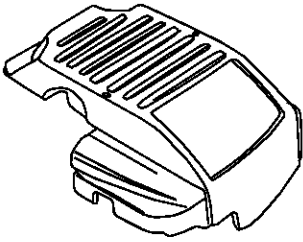
Model Series 520

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	720-0249	Hub Cap, Gray	52	749-0734B	Lower Handle
2	738-0102	Front Axle Bolt	53	726-0240	Cable Tie
3	736-0504	Wave Washer (used w/ Ref. 4 only)	54	720-0276	Hand Knob
4	741-0484	Wheel Bearing (optional)	55	746-0843	Throttle Cable (optional)
5	634-0020	Front Wheel 8" x 1.75"	56	746-0876	Throttle Lever (optional)
	734-1821	Front Wheel w/Bearing 734-1821	57	736-0501	Spring Washer .66" I.D. (optional)
6	736-0105	Bell Washer, .38" I.D.	58	712-0324	Hex Lock Nut 1/4"-20
7	738-0507B	Shoulder Bolt .5"	59	710-1270	Screw 1/4"-20 x 1.3"
8	14832	Spring Lever Assembly w/Knob	60	746-0883	Control Cable Housing
9	15262B	Pivot Bar	61	646-0875	Throttle Body (optional)
10	15261A	Height Adjust Plate	62	647-0004	Control Handle Assembly (Deluxe)
	14578	Height Adjust Assembly Complete R.H.		747-0824	Control Handle Assembly (Std.)
	14579	Height Adjust Assembly Complete L.H.	63	720-0225	Foam Grip
11	736-0356	Bell Washer .39" I.D. x 1.38"	64	749-0539B	Upper Handle
12	712-0798	Hex Nut 3/8-16	65	710-1205	Rope Guide
13	682-0001A	22" Deck Assembly	66	710-1174	Carriage Bolt 5/16"-18 x 2", Curved Head
14	748-0358	Crankshaft Spacer	67	746-0710A	Self Propell Cable 48"
15	736-0513	Spring Washer .89" I.D.	68	731-1057	Drive Lever Housing-Upper
16	736-0514	Flat Washer .88" I.D.	69	731-0620	Drive Control Lever
17	756-0962	Upper Pulley Half	70	731-1058	Drive Lever Housing-Lower
18	756-0961	Lower Pulley Half	71	731-1059	Cable Mounting Cap
19	748-0376C	Blade Adapter w/star	72	710-0841	Sunk Head Tap Screw #10 x .75"
	753-0588	Blade Adapter Kit	73	731-1386A	Mulching Baffle (optional)
20	742-0742	22" Mulching Blade (optional)	74	736-0104	Internal Lock Washer 5/16" I.D.
	742-0642	22" Standard Blade	75	710-0376	Hex Bolt 5/16"-18 x 1.0" (GR.5)
21	736-0524A	Blade Bell Support	76	734-1396	Chevron Tire 16" x 2.125"
22	710-1044	Hex Bolt 3/8"-24x1.5"	77	734-1397	Inner Tube 16" x 2.125"
23	710-0654A	Hex TT-Tap Screw 3/8"-16x1"	78	734-1400	Rimstrip 16" x 7/8"
24	710-0607	Hex B-Tap Screw 5/16"x.5"	79	741-0485	Flange Bearing .63" I.D.
25	782-9014	Deck Bracket	80	734-1399	Rim Assy Only 16" x 2.1"
26	736-0242	Bell Washer 5/16" I.D.	81	712-0329	Special Hex Nut 5/16"-18
27	712-0267	Hex Nut 5/16"-18	82	748-0315	Pawl and Spring Assy
28	736-0300	Flat Washer .385" I.D. x .87" O.D.	83	748-0312	Wheel Ratchet
29	712-0296	Hex Lock Nut 3/8"-24	84	736-0270	Bell Washer 1/4" I.D.
30	750-0624	Shield Spacer .5"x.1"	85	710-3015	Hex Bolt 1/4"-20 x .75"
31	710-0653	Hex Tap Screw 1/4"x.38"	86	14967	Wheel Cover
32	710-0599	Hex Washer Head TT-Tap Scr. 1/4"-20	87	712-0267	Hex Nut 5/16"-18
33	712-0431	Flange Lock Nut 3/8"-16	88	712-0287	Hex Nut 1/4"-20
34	710-0870	Hex Bolt 3/8"-16x.625"	89	682-7500	Rear Drive Support Assembly
35	732-0655	Height Adjustment Lever	90	710-0896	Hex Tap Screw 1/4" x .38"
36	720-0223	Grip	91	736-0302	Flat Washer.632" x .943"
37	682-3004	Handle Bracket Assembly, L.H.	92	750-0192	Spacer .635" I.D. x .88" x .790"
38	710-3013	Hex Bolt 1/4"-20x.5"	93	16136C	Handle Bracket Assembly- R.H.
39	682-7501	Chaincase and Arm Assembly	94	710-0654A	Hex TT-Tap Screw 3/8"-16x1"
40	741-0413	Hex Flange Bearing .631" I.D.	95	712-0627	Hex Nut 5/16"-18
41	736-0256	Flat Washer .635" I.D. x 1.0" O.D.	96	736-0258	Flat Washer .38" I.D. x 1" O.D.
42	713-0425	Sprocket and Axle Assembly	97	731-1172	Rear Flap
43	748-0313	Spacer .63" I.D. x 1.25"	98	16563A	Retaining Strip
44	736-0329	Lock Washer 1/4" I.D.	99	717-0417B	Trans.Complete (see breakdown)
45	713-0257	#48 Chain 1/2" Pitch x 52 Links	100	16500A	Hex Bearing Cup
46	710-0260	Carriage Bolt 5/16"-18 x .62"	101	754-0369	V-Belt
47	736-0270	Bell Washer 1/4" I.D.	102	731-1034	Chute Deflector Assembly
48	710-0599	Hex TT-Tap Screw 1/4"-20x.5"	103	720-0279	Handle Knob 1/4"-20
49	17032	Adapter Plate	104	732-0593	Torsion Spring
50	747-0710	Hinge Pin	105	710-0605	Oval C-Sunk Screw (optional)
51	714-0104	Internal Cotter Pin 5/16" Dia.	106	746-0550	Control Cable 39"



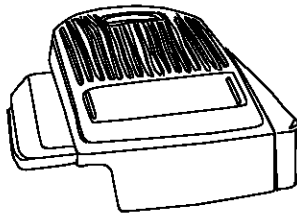
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-1062	Hex Bolt 1/4-20 x 1.25" Lg.	26	732-0357A	Extension Spring 1.12" Lg.
2	726-0329	L-Wash. 1/4" I.D.	27	618-0054	Lower Hsg. Half (Incl. Ref. 12)
3	618-0053	Upper Hsg. Half (Incl. Ref. 12)	28	741-0415	Flange Bearing .56 Dia.
4	713-0400	#48 Sprocket 7 Tooth x 1/2 Pitch	29	717-0616A	Shaft Ass'y.
5	736-0336	Fl-Wash. 5/8" I.D. x .030	30	741-0414	Flange Bearing .629 Dia.
6	741-0413	Hex Flange Brg. .631" I.D.	31	721-0213	Oil Seal .625 Dia.
7	16500A	Hex Bearing Cup	34	710-0589	Scr. AB #10-16:..750 HxIndWsh.
8	736-0314	Thrust Wash. .382" I.D. x .70" O.D.	35	736-0410	Hex Washer .26" x .88"
9	741-0479	Thrust Bearing .375" I.D. x .812" O.D.	36	17718	Transmission Belt Guard
11	717-1216	11 Tooth Helical Gear	37	721-0325	Plug 1/4 x .437"
12	748-0208A	Flange Bearing	38	710-0653	Hex B-Tap Scr. 1/4-20:..375 Lg.
13	721-0212	Oil Seal	39	710-0599	Hex AB-Tap Scr. 1/4 x .50" Lg.
15	756-0330A	Fl-Pulley 5.06" I.D.	40	710-0896	Hex B-Tap Scr. 1/4 x .62" Lg.
16	736-0270	Bell-Wash. .265" I.D. x .75"	41	712-0287	Hex Nut 1/4-20 Thd.
17	712-0351	Hex Nut 1/4-28 L.H. Thd.	42	736-0270	Bell-Wash. .265" I.D. x .75"
18	738-0440	Shld. Spacer .375" Dia. x .170	43	736-0329	L-Wash. 1/4" I.D.
20	738-0826	Shld. Bolt .375" Dia. x .40"	44	746-0710A	S.P. Cable-48" Lg.
21	656-0008	Fl-Idler Plastic 1.50" Dia. (Incl.Ref. 22)	45	747-0549	S.P. Belt Guard
22	741-0556	Needle Brg. .375" x .375"	46	782-7569	Belt Guard
24	782-7570	Idler Brk't. Ass'y.	47	17064	Belt Cover
25	712-0138	Hex Patch L-Nut 1/4-28 Thd.	-	717-0417B	Transmission Comp.

Engine Shrouds



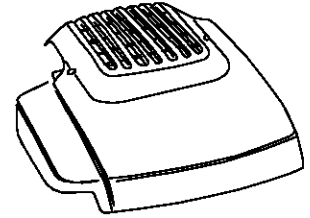
Part No.	Color
751B281439	Dark Red
751B281440	Black
751B281443	Bright Red

Hardware: 710-1256



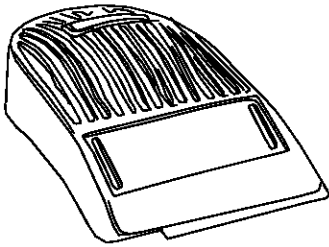
Part No.	Color
731-1395A	Red
731-1396A	Black
731-1397A	Gray

Hardware: 710-1256



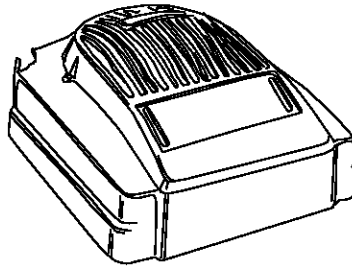
Part No.	Color
731-1402A	Yellow
731-1694	Black
731-1695	Silver
731-1934	Charcoal

Hardware: 710-1256



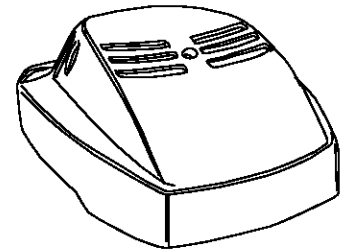
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Hardware: 710-1274



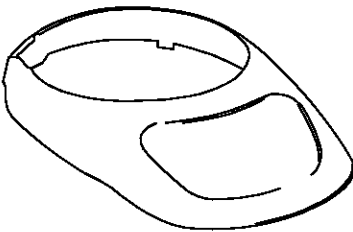
Part No.	Color
731-1586B	Black
731-1612A	Red

Hardware: 7510042823

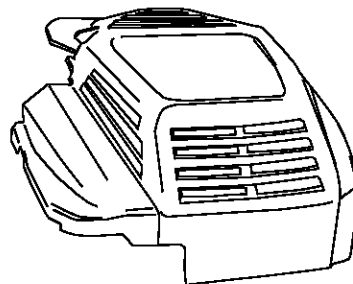


Part No.	Color
7510143208	Black

Hardware: 7510042823

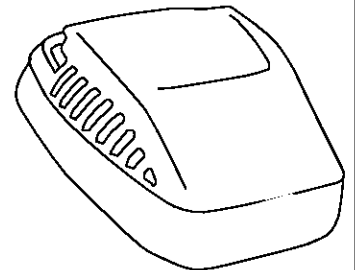


Part No.	Color
7511681311	Black
7511681911	Red
7511682011	Gray



Part No.	Color
751B281451	Gray

Hardware: 710-1256
(Screw)



Part No.	Color
751B281476	Black
751B281777	Yellow

Hardware: 710-1237
(Screw)

NOTES:

MANUFACTURER'S LIMITED WARRANTY FOR:



For TWO YEARS from the date of retail purchase within the United States of America, its possessions and territories, MTD PRODUCTS INC will, at its option, repair or replace, for the original purchaser, free of charge, any part or parts found to be defective in material or workmanship. This warranty covers units which have been operated and maintained in accordance with the operating instructions furnished with the unit, and which have not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance or alteration.

Normal wear parts or components thereof are subject to separate terms as noted below in the "No Fault Ninety Day Consumer Warranty" clause.

All normal wear part failures will be covered on this product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear parts failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts are defined as batteries*, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates 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, please check the yellow pages or contact the Customer Service Department of MTD PRODUCTS INC, P. O. Box 368022, Cleveland, Ohio 44136-9722. Phone 1 (330) 273-4683. The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by the Customer Support Department of MTD PRODUCTS INC.

Transportation charges: Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser.

Units exported out of the United States: MTD PRODUCTS INC 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 PRODUCTS INC's authorized channels of export distribution.

Other Warranties:

1. The engine or component parts thereof carry separate warranties from their manufacturers. Please refer to the applicable manufacturer's warranty on these items.
2. *Batteries are covered by a 90-day replacement warranty.
3. Log splitter pumps, valves and cylinders or component parts thereof are covered by a one year warranty.
4. All other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed in their entirety.
5. The provisions as set forth in this warranty provide the sole and exclusive remedy of MTD PRODUCTS INC's obligations arising from the sales of its products. MTD PRODUCTS INC will not be liable for incidental or consequential loss or damage.

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. Certain disclaimers are not allowed in some states and therefore they may not apply to you under all circumstances.

NOTE: This warranty does not cover routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments. Nor does this warranty cover normal deterioration of the exterior finish due to use or exposure.