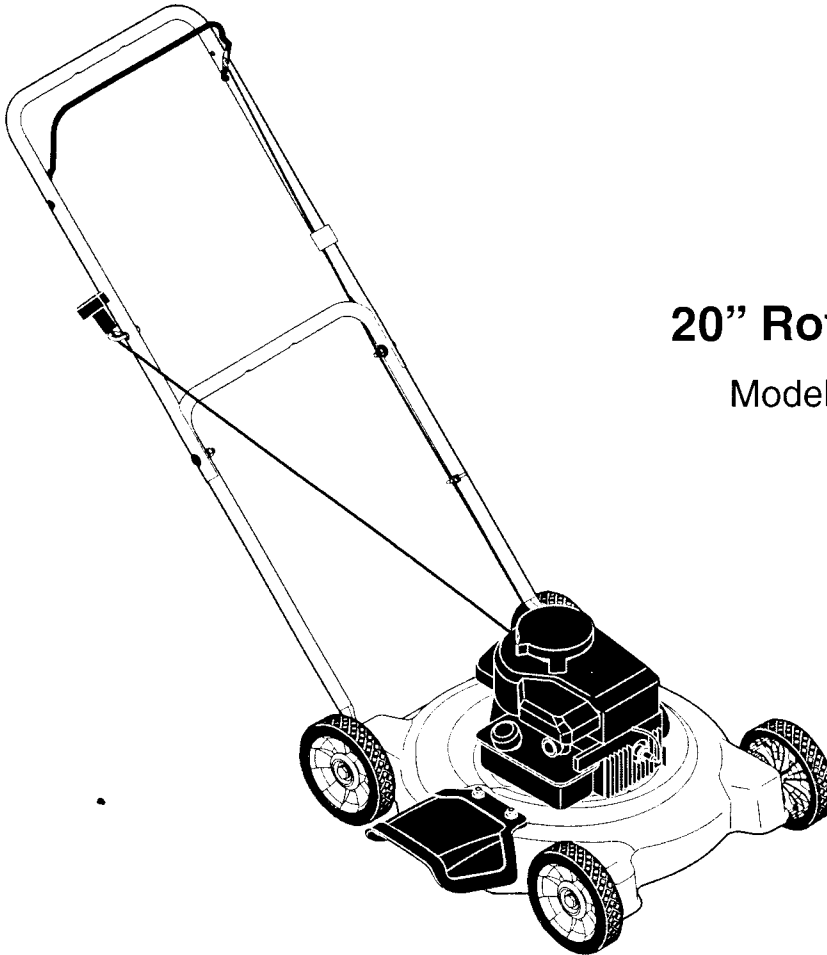


Operator's Manual



20" Rotary Mower

Model Series 020

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

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

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

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(9/2004)

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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. A sample model plate is also given below. You can locate the model plate by standing at the operating position and looking down at the rear of the deck. This information will be necessary to use the manufacturer's web site and/or help from the Customer Support Department or an authorized service dealer.



Copy the model number here: _____

Copy the serial number here: _____

CUSTOMER SUPPORT

Please do NOT return the unit to the retailer from which it was purchased, without first contacting Customer Support.

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, you can seek help from the experts. Choose from the options below:



Visit **mtdproducts.com** for many useful suggestions. Click the Service & Support option to gain access to useful online information. Choose your model and click on the appropriate button for immediate assistance.

Find Answers

Click here to search our knowledge base. Search by product, keyword, or phrase.



My Stuff

Login to check the status of your questions, modify your inquiries, or update your personal profile.

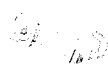
Service Locator

Need local assistance? Click here to find authorized service centers in your area.

Manuals Online

Need a manual? Download literature for current models.

*The answer
you are
looking for
could be
just a
mouse click
away!*



If you prefer to reach a Customer Support Representative, please call **1(800) 800-7310**.



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

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



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

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

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

General Operation

1. Read this operator's manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. This machine is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform one job: to mow grass. Do not use it for any other purpose.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the instructions in this manual and should be trained and supervised by a parent. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use this machine.
4. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys and other foreign objects which could be tripped over or picked up and thrown by the blade. Thrown objects can cause serious personal injury. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
5. To help avoid blade contact or a thrown object injury, stay in the operator zone behind the handles and keep children, bystanders, helpers and pets at least 75 feet from the mower while it is in operation. Stop machine if anyone enters the area.
6. Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
7. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Never operate this machine in bare feet, sandals, slippery or light weight (e.g. canvas) shoes.
8. Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade can amputate hands and feet.
9. A missing or damaged discharge cover can cause blade contact or thrown object injuries.
10. Many injuries occur as a result of the mower being pulled over the foot during a fall caused by slipping or tripping. Do not hold on to the mower if you are falling; release the handle immediately.
11. Never pull the mower back toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind to avoid tripping and then follow these steps:
 - a. Step back from the mower to fully extend your arms.
 - b. Be sure you are well balanced with sure footing.
 - c. Pull the mower back slowly, no more than half way toward you.
 - d. Repeat these steps as needed.
5. Do not operate the mower while under the influence of alcohol or drugs.
6. Do not engage the self-propelled mechanism on units so equipped while starting engine.
7. 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.
8. Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. If you feel you are losing your footing, release the blade control handle immediately and the blade will stop rotating within three seconds.
9. Mow only in daylight or in good artificial light. Walk, never run.
10. Stop the blade when crossing gravel drives, walks or roads.
11. If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
12. 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.
13. Never operate mower without proper trail shield, discharge cover, grass catcher, blade control handle or other safety protective devices in place and working. Never operate mower with damaged safety devices. Failure to do so, can result in personal injury.
14. Muffler and engine become hot and can cause a burn. Do not touch.
15. Only use parts and accessories made for this machine by the manufacturer. Failure to do so can result in personal injury.
16. If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance. Telephone 1-800-800-7310 for the name of your nearest dealer.

Slope Operation

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

Do:

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

Do Not:

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

Children

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

1. Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
2. Be alert and turn mower off if a child enters the area.
3. Before and while moving backwards, look behind and down for small children.
4. Use extreme care when approaching blind corners, doorways, shrubs, trees, or other objects that may obscure your vision of a child who may run into the mower.
5. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
6. Never allow children under 14 years old to operate a power mower. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.

Service

Safe Handling Of Gasoline:

1. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite.
2. Wash your skin and change clothes immediately.
3. Use only an approved gasoline container.
4. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
5. Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
6. Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
7. Extinguish all cigarettes, cigars, pipes and other sources of ignition.

8. Never fuel machine indoors because flammable vapors will accumulate in the area.
9. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
10. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to provide for fuel expansion.
11. Replace gasoline cap and tighten securely.
12. If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
13. Never store the machine or fuel container near an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
14. To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
15. Allow a mower to cool at least 5 minutes before storing.

General Service:

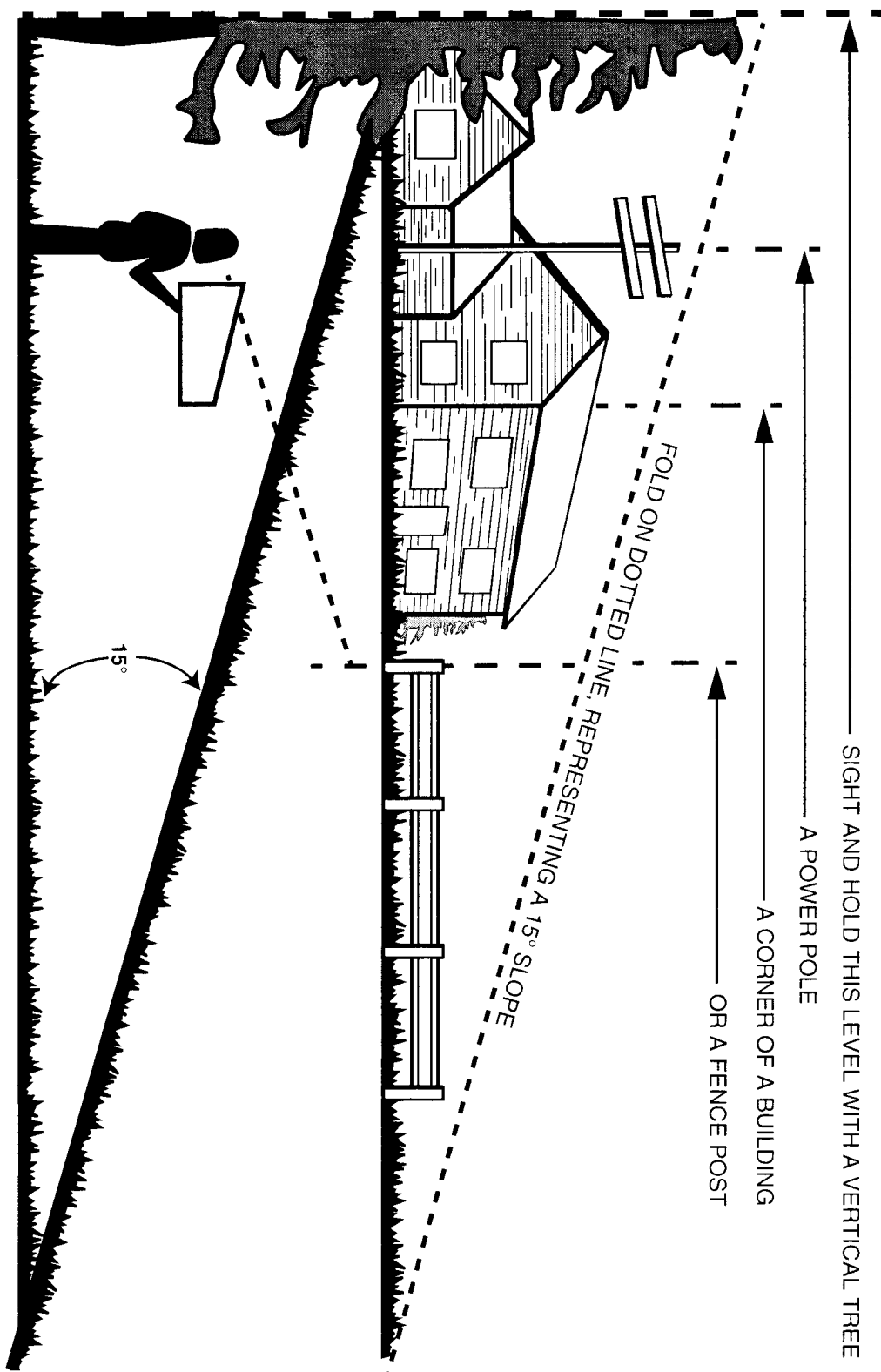
1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent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

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. **Do not operate** your lawn mower on such slopes.



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

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

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

SECTION 3: SETTING UP

NOTE: This operator's manual covers various models of mowers. Follow instructions pertaining to your unit only.

Unpacking Loose Parts

Once the carton has been opened, you will find several loose parts like the wheels, handles, and chute deflector. A hardware pack is also included in the carton. Make sure to remove all loose parts before discarding the carton. Follow instructions below to attach these loose parts to your mower safely and properly for best performance.

Hardware Pack

For convenience of assembly, identify the pieces in the hardware pack according to Figure 1 below:

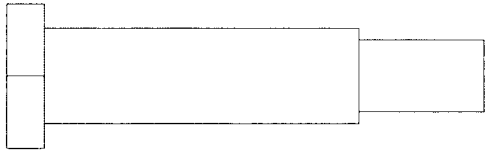
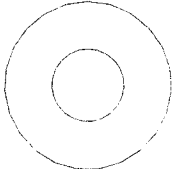
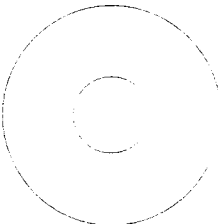

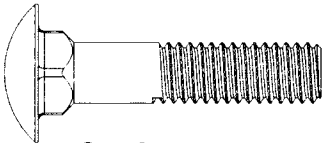
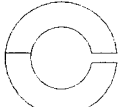
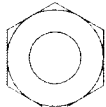
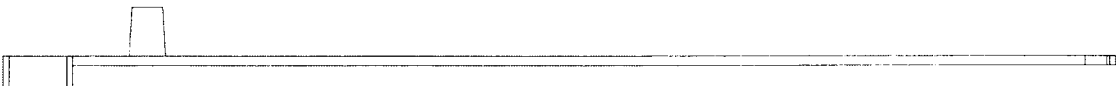
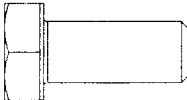
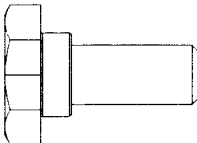
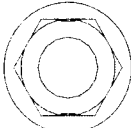
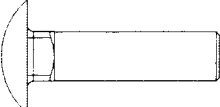
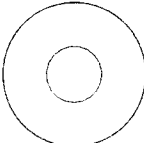

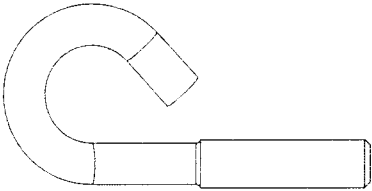
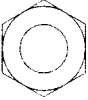
GROUP 1	 Qty. 4	 Qty. 4	 Qty. 4	 Qty. 4
GROUP 2	 Qty. 2	 Qty. 2	 Qty. 2	
GROUP 3	 Qty. 1			
GROUP 4	 Qty. 2	 Qty. 2	 Qty. 4	
GROUP 5	 Qty. 2	 Qty. 2	 Qty. 2	
GROUP 6	 Qty. 1	 Qty. 1		

Figure 1

Tools Required

A set of adjustable wrenches or individual wrenches of the following sizes: 7/16-inch, 1/2-inch, 9/16-inch, 5/8-inch, and 3/4-inch

NOTE: Reference to right, left, front, or back of the lawn mower is from the operating position only, unless otherwise stated.

Spark Plug Wire

1. Disconnect spark plug wire from the spark plug and ground it against the engine.
2. If engine is equipped with a rubber boot, attach rubber boot to a bolt on the engine to ground. See Figure 2.

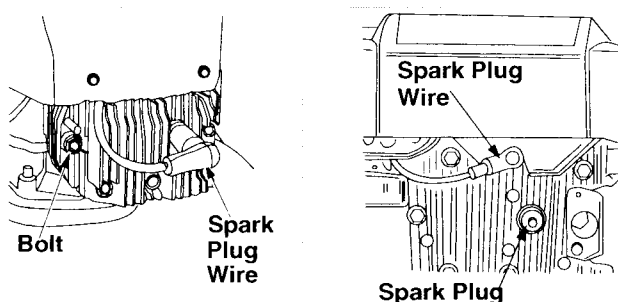


Figure 2

Attaching Upper and Lower Handle

Attaching Lower Handle

1. Lift the rear of the deck and place it on a block securely.
2. Place the lower handle over the deck and align the holes on the deck with the corresponding holes on the handle.
3. Secure the lower handle to the deck using the hex screws, shoulder screws, and flange lock nuts from group 4 of the hardware pack. See Figure 3.

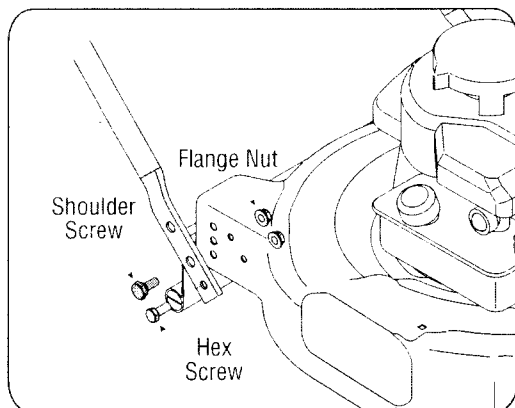


Figure 3: Attaching lower handle to mower deck.

Attaching Upper Handle

1. Place the upper handle in position over the lower handle keeping the blade control handle facing up.
2. Secure the upper handle to the lower handle using the carriage bolts, lock washers, and hex nuts from group 2 of the hardware pack. See Figure 4.

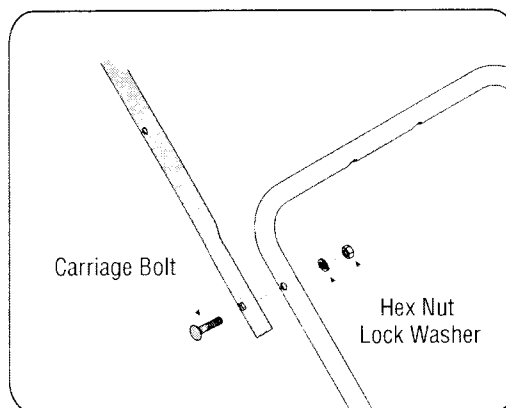


Figure 4: Attaching upper handle to lower handle.

Attaching Blade Control Handle

NOTE: If the blade control handle became displaced either during shipping or during assembly, reattach it now. If the blade control handle is firmly secured in place, you may proceed to the next step.

1. Insert the curved end of the blade control handle into the right hole, Figure 5A.
2. Squeeze the handle in and insert the straight end of into the left hole of the upper handle, Figure 5B.
3. Squeeze the blade control handle against the upper handle to check for proper assembly.

NOTE: The hole in the blade control handle must be on the left side and the control handle must touch the upper handle when squeezed.

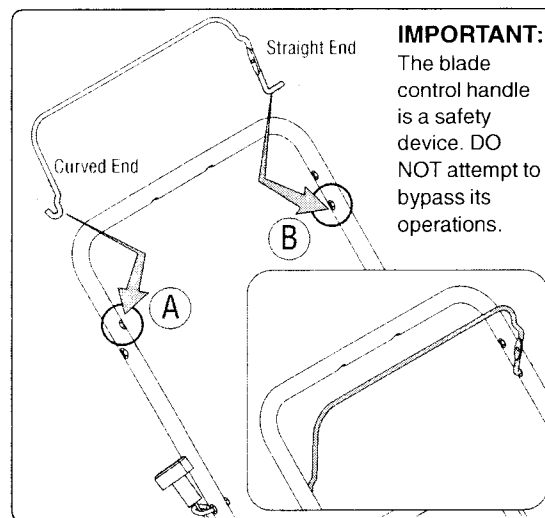


Figure 5: Attaching the blade control handle (optional)

Attaching Brake Cable

1. Unwrap the brake cable from the engine and route the cable under the lower handle.

Attaching "Z" Fitting

2. To make it easier to attach the Z fitting, remove the left side of the blade control handle as shown in Figure 6.
3. Hook the "Z" end of the brake cable into the handle from the inside to outside, Figure 6.

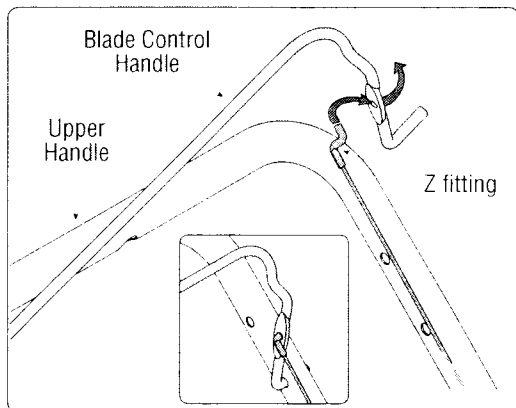


Figure 6: Attaching the "Z" fitting.

4. Reattach the left side of the blade control handle.

Securing Brake Cable



WARNING: The cable must be routed properly to avoid contact with all sharp edges and hot surfaces. Such contacts damage the cable and render the controls inoperative.

5. Press the snap fitting in place as shown in Figure 7. Make sure that the blade control handle is on top of the upper handle.

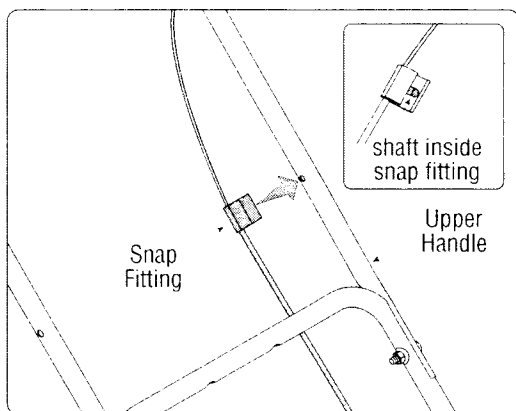


Figure 7: Installing the snap fitting.

6. Secure the cable to the lower left handle with a cable tie from group 3 of the hardware pack. Trim off extra length of the cable tie. See Figure 8.

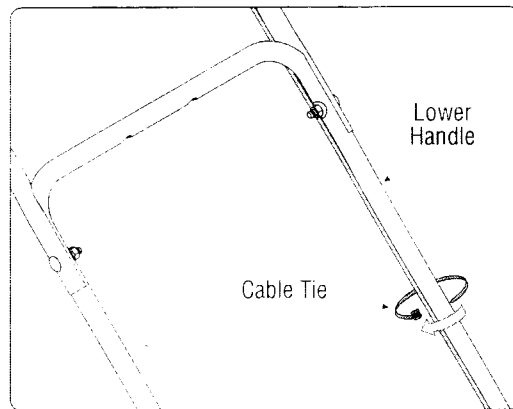


Figure 8: Use the cable tie to secure the brake cable to the lower handle.

Attaching Wheels

NOTE: The holes in the deck provide three cutting heights. Use the same hole for all four wheels when assembling. For example, if you desire the lowest cutting position, assemble each wheel at the highest hole on the deck. Refer to the Cutting Height Adjustment section for more information.

1. Using hardware from group 1, secure the wheel to the deck as shown in Figure 9. The small bell washer should be installed with the crown side facing the wheel.

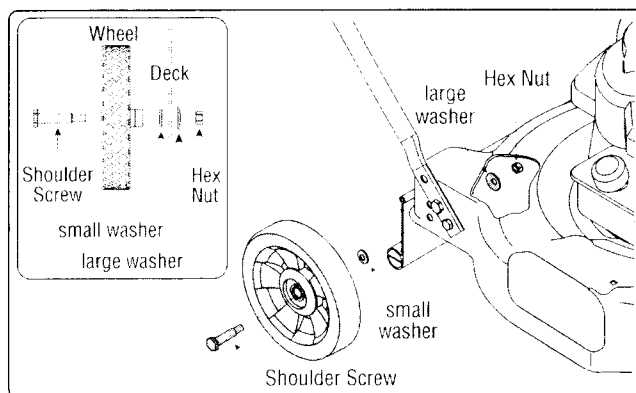


Figure 9: Installing wheels.

2. Secure the wheel to the deck with the large bell washer and nut. Repeat on other sides.

Attaching Chute Deflector

1. Align the holes on the chute deflector with the corresponding holes on the deck.
2. Using group 5 from hardware pack, place carriage bolts from underside of the deck and up through the chute deflector. See Figure 10.
3. Secure each bolt with a washer and lock nut.

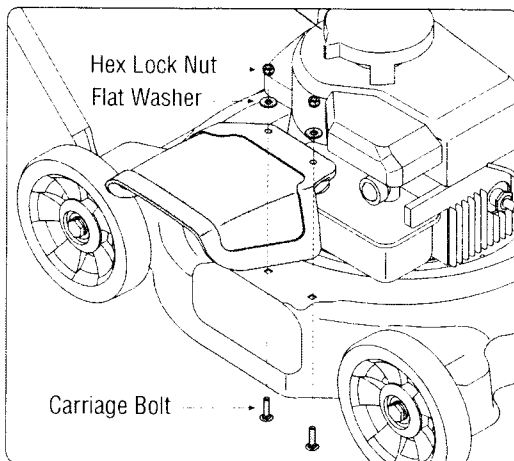


Figure 10: Attaching the chute deflector.

Attaching Starter Rope

1. Using hardware from group 6, loosely attach the eye bolt to the upper handle and thread the lock nut only a few turns. Do not tighten. See Figure 11A.
2. With the spark plug wire disconnected and grounded, depress the blade control handle and pull the rope out of the engine.
3. Loop the rope through the eye bolt, Figure 11B.
4. Tighten the eye bolt to the handle using the hex lock nut. DO NOT overtighten.

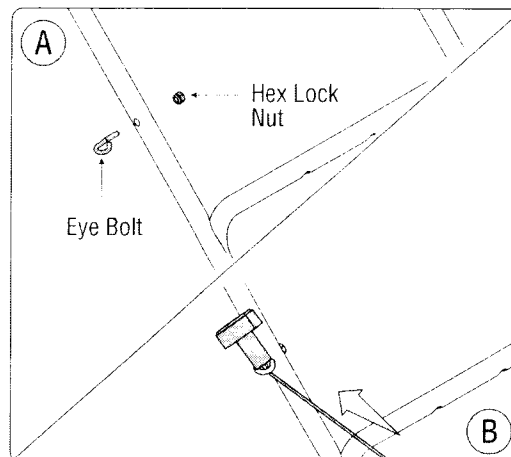


Figure 11: Attaching the starter rope.

SECTION 4: OPERATING YOUR LAWN MOWER

Know your Lawn Mower

Now that you have set up your lawn mower for operation, get acquainted with its controls and features, described below and illustrated in Figure 12. This knowledge will allow you to use your new equipment to its fullest potential.

Blade Control Handle

The blade control handle is attached to the upper handle. Depress the blade control handle to operate the unit. Release it to stop engine and blade.



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

Recoil Starter

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

Chute Deflector

The chute deflector discharges grass clippings beside each cutting lap.

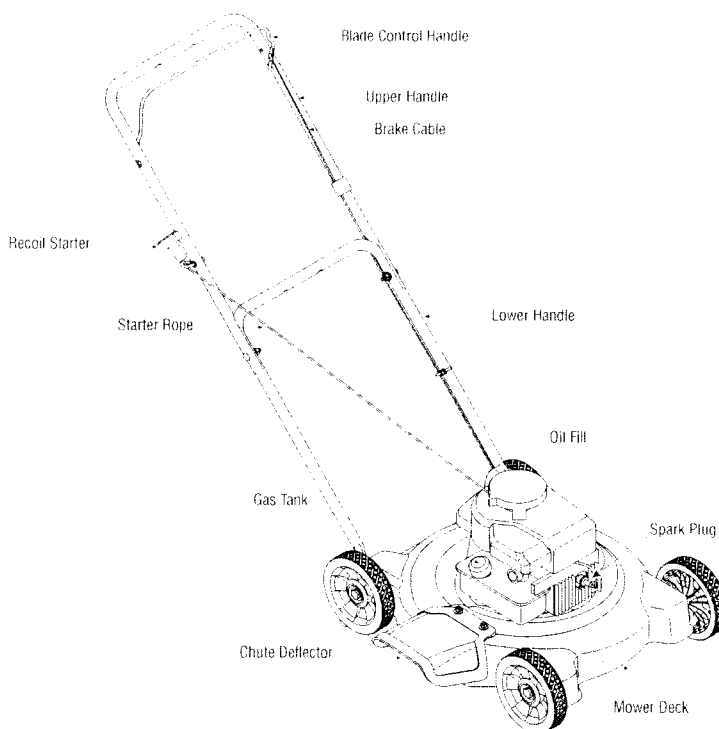


Figure 12: Parts of the mower.

Gas & Oil Fill-Up

IMPORTANT: Your lawn mower was shipped without any oil in the engine or gasoline in the gas tank. Follow the accompanying engine manual to fill up both the oil and gasoline before starting for the first time. For subsequent operation of the lawn mower, it is very important that you check the level of oil and gasoline before operation.

- Check oil level and add oil if necessary. Follow engine manual for this. See Figure 12 for location of oil fill.
- Service the engine with gasoline as instructed in the engine manual. See Figure 12 for location of gas tank.



WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fill gasoline indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

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.



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

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.

1. Push primer three times. Wait about two seconds between each push. In temperature around 55° F or below, prime five times. Do not prime to restart a warm engine.
2. Standing behind the mower, squeeze the blade control handle against the upper handle. See Figure 13A.
3. Holding these two handles together firmly, grasp recoil starter handle and pull rope out with a rapid, continuous, full arm stroke. See Figure 13B. Keeping a firm grip on the starter handle, let the rope rewind slowly. Repeat until engine cranks. Let the rope rewind each time slowly.

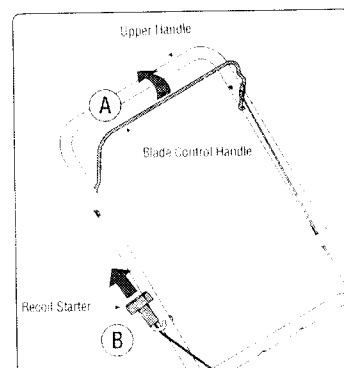


Figure 13: To start engine, squeeze the blade control handle (A), then pull recoil starter (B).

Stopping Engine

1. Release blade control handle to stop the engine and the blade.
2. Disconnect spark plug wire from spark plug and ground against the engine.

Using Your Lawn Mower

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



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

Operating Tips

- For best results, do not cut wet grass.
- New grass, thick grass, or wet grass may require a narrower cut.
- For a healthier lawn, never cut off more than one-third of the total length of the grass.
- Your lawn should be cut in the fall as long as there is growth.
- Adjust ground speed according to the condition of the lawn.

Cutting Height Adjustment

1. Remove the carriage bolts and related hardware from the wheels, Figure 14.
2. Reattach the wheels with carriage bolts at another hole. Remember to attach ALL wheels at the same relative position to ensure an even cut. Refer to instructions for attaching the wheels in the "Setting Up" section of this manual. For a higher cutting height, use the lower hole on the deck; For a lower cutting height, use the upper hole.

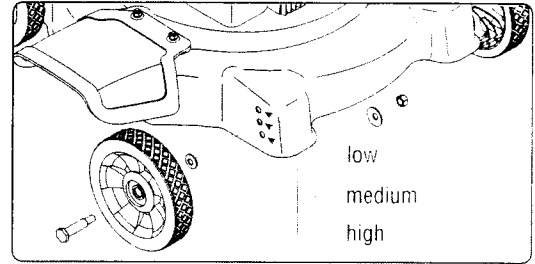


Figure 14: Cutting Height Adjustments

SECTION 5: MAINTAINING YOUR LAWN MOWER

General Recommendations

- Always observe safety rules when performing any maintenance.
- The warranty on this lawn mower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, operator must maintain the lawn mower as instructed here.
- Changing of engine-governed speed will void engine warranty.
- All adjustments should be checked at least once each season.
- Periodically check all fasteners and make sure these are tight.



WARNING: Always stop engine, disconnect spark plug, and ground against engine before cleaning, lubricating or doing any kind of maintenance on your machine.

Lubrication

(See Figure 15)

Blade Control Handle

- Lubricate the pivot points on the blade control handle at least once a season with light oil. The blade control must operate freely in both directions. See Figure 15.

Wheels

- If the wheels are removed for any reason, lubricate the surface of the carriage bolt and inner surface of the wheel with light oil.

Engine

Follow the accompanying engine manual for lubrication schedule and instruction.

Cleaning Mower

- Clean underside of the mower deck after each use to prevent build-up of grass clippings or other debris. Follow the steps below for this job.

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

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



WARNING: Never tip the mower more than 90 degrees in any direction 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.

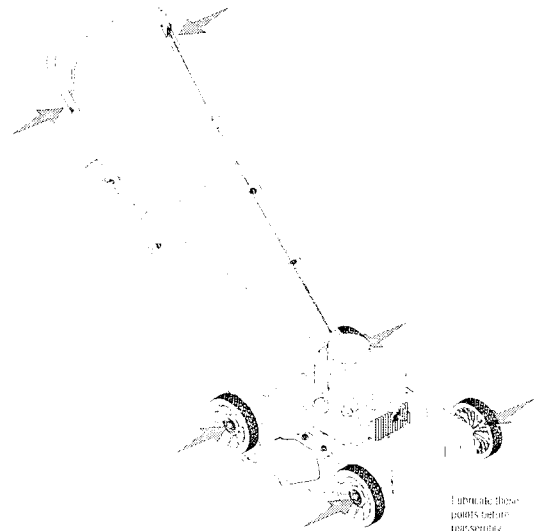


Figure 15: Lubrication areas

3. Scrape and clean the underside of the deck with a suitable tool. Do *not* spray with water.
4. Put the mower back on its wheels on the ground. If you had put plastic under the gas cap earlier, make sure to remove it now.

Blade Care



WARNING: When removing the cutting blade for sharpening or replacement, protect your hands with a pair of heavy gloves or use a heavy rag to hold the blade.

- Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary. Follow the steps below for blade service.
1. Disconnect spark plug wire from spark plug. Turn mower on its side making sure that the air filter and the carburetor are up.
 2. Remove the bolt and the blade bell support. See Figure 16.
 3. Remove blade and adapter from the crankshaft.
 4. 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.
 5. When sharpening the blade, follow the original angle of grind. Grind each cutting edge equally to keep the blade balanced.

NOTE: Always remove blade from the adapter for testing balance.

6. Balance the blade on a round shaft screwdriver to check. Remove metal from the heavy side until it balances evenly.



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

7. Lubricate the engine crankshaft and the inner surface of the blade adapter with light oil. Slide the blade adapter onto the engine crankshaft.
8. Place blade on the blade adapter, Figure 16. Check that the blade is aligned and seated on the blade adapter flanges.

NOTE: Place the blade on the adapter such that the side of the blade marked "Bottom" (or with part number) faces ground when the mower is in the operating position.

9. Place blade bell support on the blade. Align notches on the blade bell support with small holes in the blade.
10. Replace hex bolt and tighten hex bolt to torque: 450 in. lbs. min., 600 in. lbs. max.

IMPORTANT: To ensure safe operation of your mower, periodically check the blade bolt for correct torque.

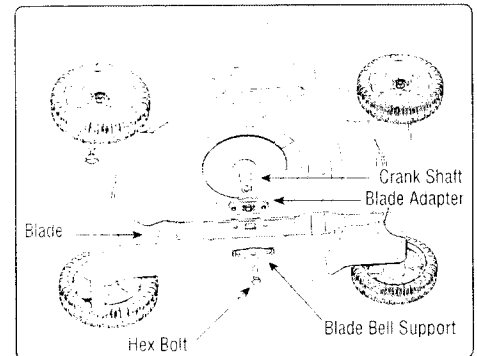


Figure 16: Mower blade and hardware

Off-Season Storage

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

1. Clean and lubricate mower thoroughly as described in the lubrication instructions.

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

2. Refer to engine manual for correct engine storage instructions.
3. Coat mower's cutting blade with chassis grease to prevent rusting.
4. Store mower in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

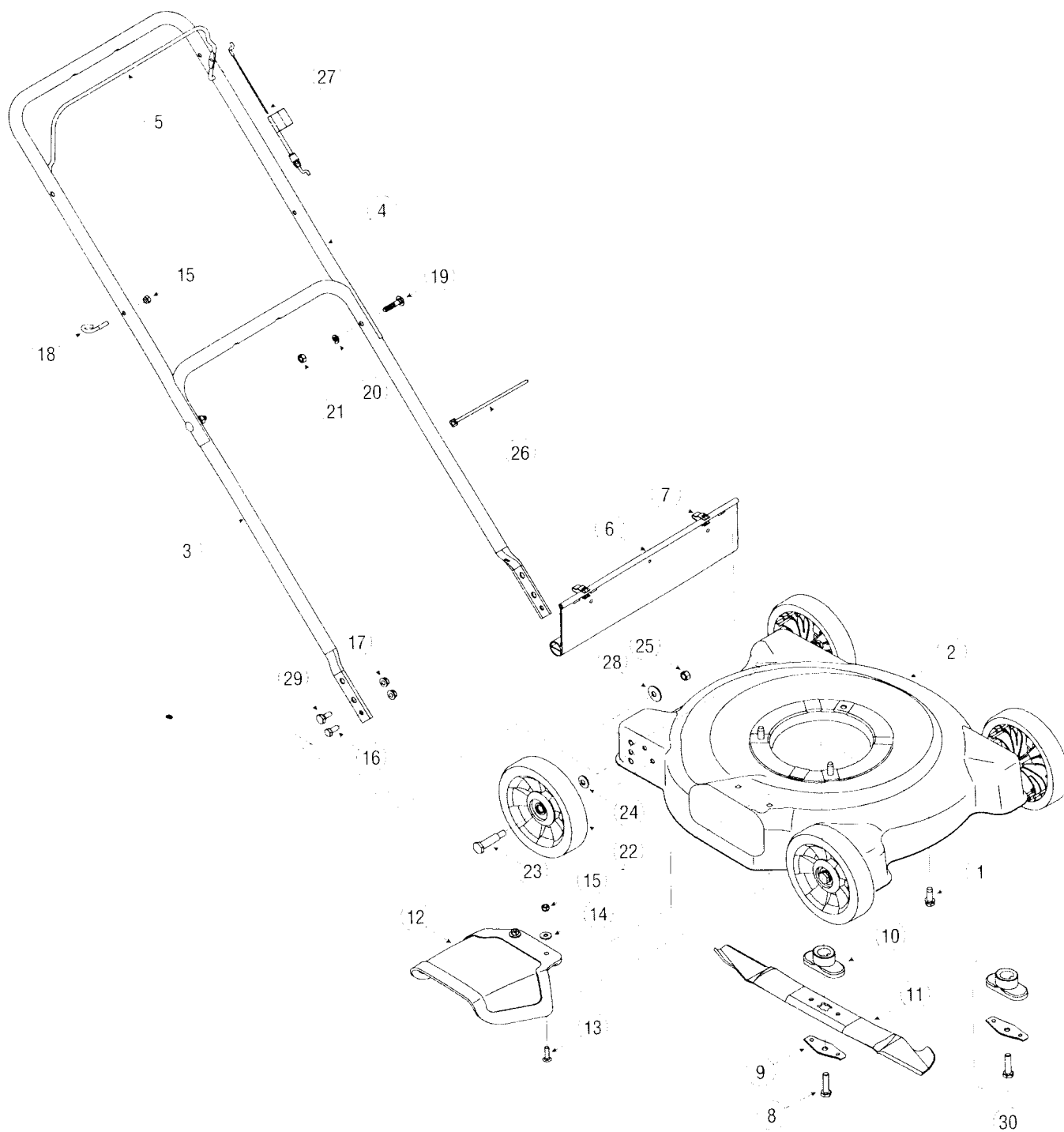
NOTE: When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts of your lawn mower before storage.

SECTION 6: TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
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 tank with clean, fresh gasoline. 4. Clean fuel line. 5. Clean, adjust gap, or replace. 6. Wait a few minutes to restart, but 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 plugged. 4. Water or dirt in fuel system. 5. Dirty air cleaner. 6. Carburetor out of adjustment. 	<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. Refer to engine manual. 6. Refer to engine manual.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low. 2. Air flow restricted. 3. Carburetor not adjusted properly. 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Remove blower housing and clean. 3. Refer to engine manual.
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". Refer to engine manual.
Idles poorly	<ol style="list-style-type: none"> 1. Spark plug fouled, faulty, or gap too wide. 2. Carburetor improperly adjusted. 3. Dirty air cleaner. 	<ol style="list-style-type: none"> 1. Reset gap to .030" or replace spark plug. Refer to engine manual. 2. Refer to engine manual. 3. Refer to engine manual.
Excessive vibration	<ol style="list-style-type: none"> 1. Cutting blade loose or unbalanced. 2. Bent cutting blade. 	<ol style="list-style-type: none"> 1. Tighten blade and adapter. Balance blade. 2. Replace blade.
Uneven cut	<ol style="list-style-type: none"> 1. Wheels not positioned correctly. 2. Dull blade. 	<ol style="list-style-type: none"> 1. Place all four wheels in same height position. 2. Sharpen or replace blade.

NOTE: For repairs beyond the minor adjustments listed above, contact an authorized service dealer.

SECTION 7: PARTS LIST FOR SERIES 020



Series 020

Ref. No.	Part No.	Part Description
1.	710-0654A	Hex Ind. Washer Screw 3/8-16 x 1.0
2.	782-0048	Cutting Deck: 20"
3.	749-04037	Lower Handle
4.	749-1092A	Upper Handle
5.	747-1161A	Control Handle (Bail)
6.	731-0872B	Rear Flap
7.	17098	Hinge Clip
8.	710-1044	Screw 3/8-24 x 1.5" Group 8
9.	736-0524A	Blade Bell Support
10.	748-0376C	Blade Adapter
11.	742-0640	Cutting Blade
12.	731-0064	Discharge Chute
13.	710-0932	Carriage Screw 1/4-20 x 1.0"
14.	736-0173	Flat Washer
15.	712-0324	Hex Lock Nut 1/4-20
16.	710-3008	Hex Screw 5/16-18 x .75"
17.	712-3004A	Flange Lock Nut 5/16-18
18.	710-1205	Eye Bolt
19.	710-0262	Carriage Bolt 5/16-18 x 1.5"
20.	736-0119	Lock Washer
21.	712-3010	Hex Nut 5/16-18
22.	734-1779	Wheel
23.	738-0533	Shoulder Screw .498 x 1.635
24.	736-0105	Bell Washer
25.	712-3017	Hex Nut 3/8-16
26.	726-0240	Cable Tie
27.	746-0946	Control Cable (Model 021)
	746-0957	Control Cable (Models 020 & 022)
28.	736-0331	Bell Washer
29.	738-04033	Shoulder Screw, 5/16-18 x .428"
30.	753-0588	Blade Adapter Kit (Incl. Ref. 8-10)

MANUFACTURER'S LIMITED WARRANTY FOR:



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

"MTD" warrants this product against defects in material and workmanship for a period of one (1) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any part, accessory or attachment not approved by MTD for use with the product(s) covered by this manual will void your warranty as to any resulting damage.

Normal wear parts are warranted to be free from defects in material and workmanship for a period of thirty (30) days from the date of purchase. Normal wear parts include, but not limited to items such as: batteries, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates, auger spiral rubber and tires.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE, through your local authorized service dealer. To locate the dealer in your area, check your Yellow Pages, or contact MTD LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-800-800-7310 or 1-330-220-4683 or log on to our Web site at www.mtdproducts.com.

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

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

- e. MTD does not extend any warranty for products sold or exported outside of the United States, its possessions and territories, except those sold through MTD's authorized channels of export distribution.
- f. Replacement parts that are not genuine MTD parts.
- g. Transportation charges and service calls.

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

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

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

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

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

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

IMPORTANT: Owner must present Original Proof of Purchase to obtain warranty coverage.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019; Phone: 1-800-800-7310, 1-330-220-4683