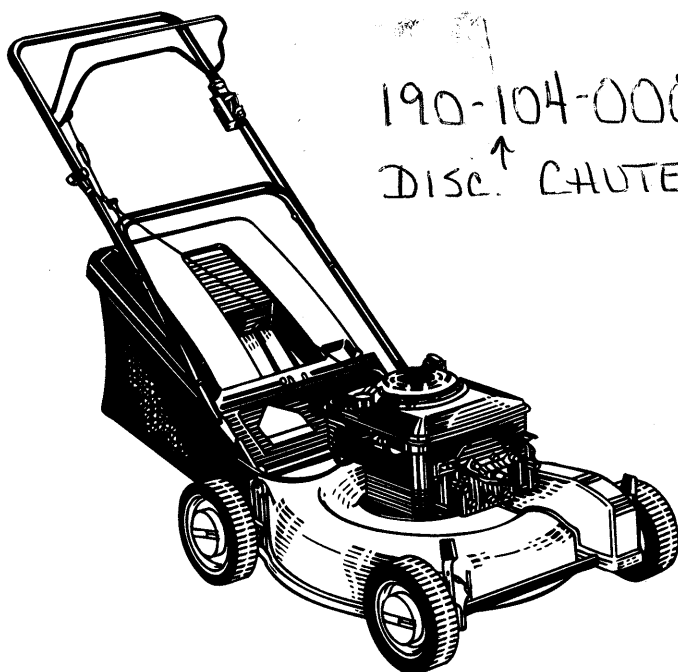


OWNER'S GUIDE

• ASSEMBLY • OPERATION • MAINTENANCE • PARTS •



(Model 458R Shown)

190-082-000 MULCHER
21"

122-436R704

ROTARY
MOWERS

190-104-000
DISC. CAUTE

190-091-000-HARD CATCHER

Model Numbers

- 122-440R000 122-450R000
- 122-442R000 122-452R000
- 122-446R000 122-456R000
- 122-448R000 122-458R000

190-088-000-SOFT CATCHER

IMPORTANT!

Record the **Model No.** and **Mfg. Code** which appear on your unit in the space below. You **must** have these numbers, along with the date of purchase, in order to receive warranty or service.

MEETS ANSI SAFETY STANDARDS

MODEL NO.	MFG. CODE

Important:
Read Safety Rules
and Instructions Carefully



Made
in
AMERICA


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 360900, Cleveland, Ohio 44136.

IMPORTANT

SAFE OPERATION PRACTICES



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR LAWN MOWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL—  **HEED ITS WARNING.**



DANGER: Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

TRAINING



1. Read this owner's guide carefully in its entirety before attempting to assemble or operate this machine. 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. 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.
3. 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 persons well acquainted with these rules of safe operation should be allowed to use your mower.
4. 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.

PREPARATION



1. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones 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.
2. Always wear safety glasses or eye shields 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.
3. 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, or sneakers.
4. Before working with gasoline, extinguish all cigarettes, cigars, pipes and other sources of ignition. Check the fuel level before starting the engine. Gasoline is an extremely flammable fuel. Do not fill the gasoline tank indoors, while the engine is running, or until engine has been allowed to cool for at least two minutes after running. Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
5. Disengage the self-propelled mechanism or drive clutch on units so equipped before starting the engine.
6. 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.
7. Never attempt to make a wheel or cutting height adjustment while the engine is running.
8. 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. Mow only in daylight or in good artificial light.

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



OPERATION

1. Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.
2. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times as the rotating blade can cause injury.
3. Stop the blade when crossing gravel drives, walks or roads.
4. 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 restarting and operating the mower.
5. If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
6. 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.
7. 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.
8. Do not run the engine indoors.
9. Never cut grass by pulling mower toward you. Mow across the face of slopes, never up-and-down. Exercise extreme caution when changing direction on slopes. Do not mow excessively steep slopes. Always be sure of your footing. A slip and fall can cause serious personal injury.
10. Never operate mower without proper guards, plates or other safety protective devices in place.
11. Muffler and engine become hot and can cause a burn. Do not touch.
12. Do not operate this mower with the chute door open, unless the complete grass catcher or chute deflector is properly mounted on the mower.



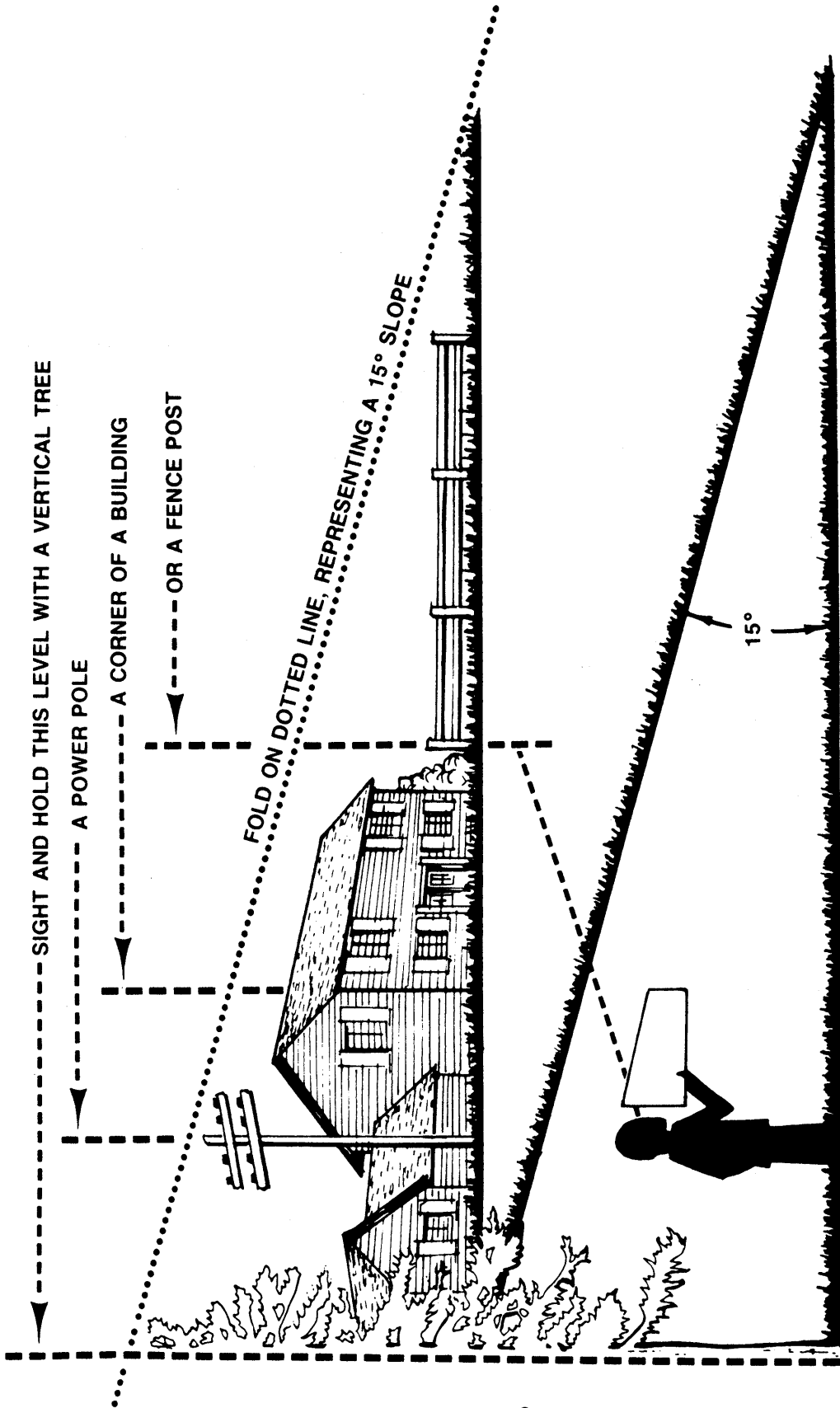
MAINTENANCE AND STORAGE

1. Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also visually inspect blade for damage (e.g. bent, cracked). Replace with blade which meets original equipment specifications.
2. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
3. Never store the mower with gasoline in the tank or gas containers inside of a building where fumes may reach an open flame or spark (e.g. gas hot water heater). Allow the engine to cool before storing in any enclosure.
4. To reduce fire hazard, keep the engine free of grass, leaves and excessive oil.
5. Check the grass catcher bag frequently for wear or deterioration. Replace a worn or damaged bag immediately. For safety protection, replace only with new bag meeting original equipment specifications.

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

SLOPE GAUGE

(Keep this sheet in a safe place for future reference.)



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.

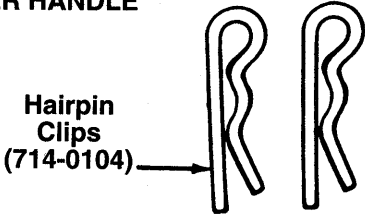
Operate RIDING mowers up and down slopes, never across the face of slopes.

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

CONTENTS OF HARDWARE PACK/PARTS IDENTIFICATION

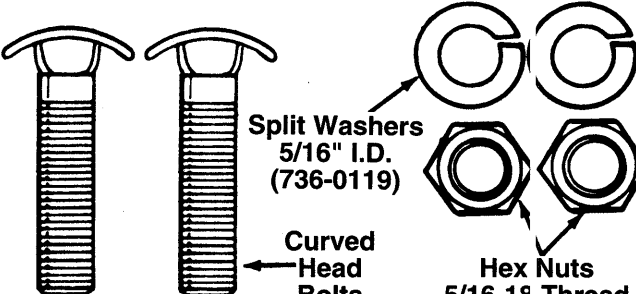
Remove this sheet from your owner's manual and lay the hardware on the illustration for identification purposes. After assembly, keep the Slope Gauge which is on the reverse side of this sheet for future use. (Hardware pack may contain extra items which are not used on your unit. Part numbers are shown in parentheses.)

A ATTACHING THE LOWER HANDLE



Hairpin Clips (714-0104)

B ATTACHING THE UPPER HANDLE

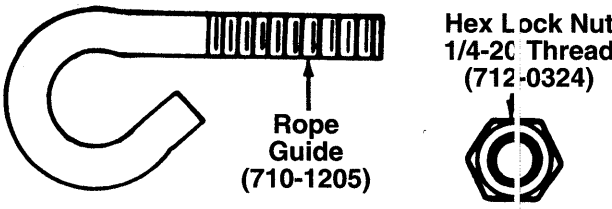


Split Washers 5/16" I.D. (736-0119)

Curved Head Bolts (710-0671)

Hex Nuts 5/16-18 Thread (712-0267)

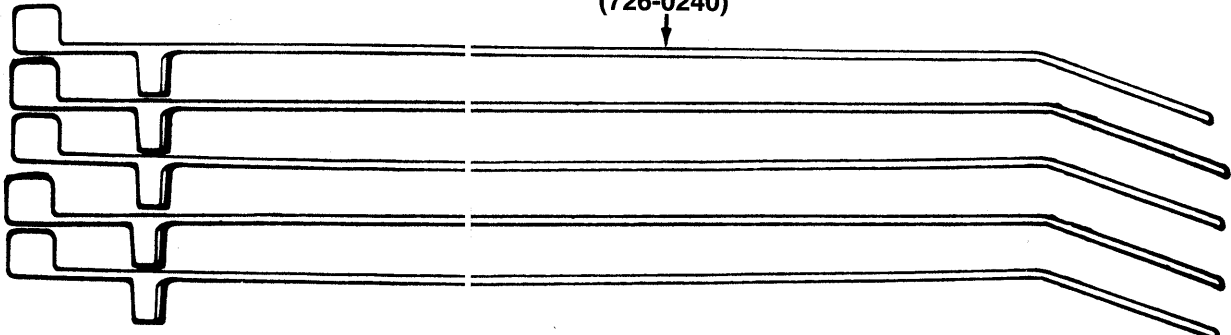
C ATTACHING THE STARTER ROPE



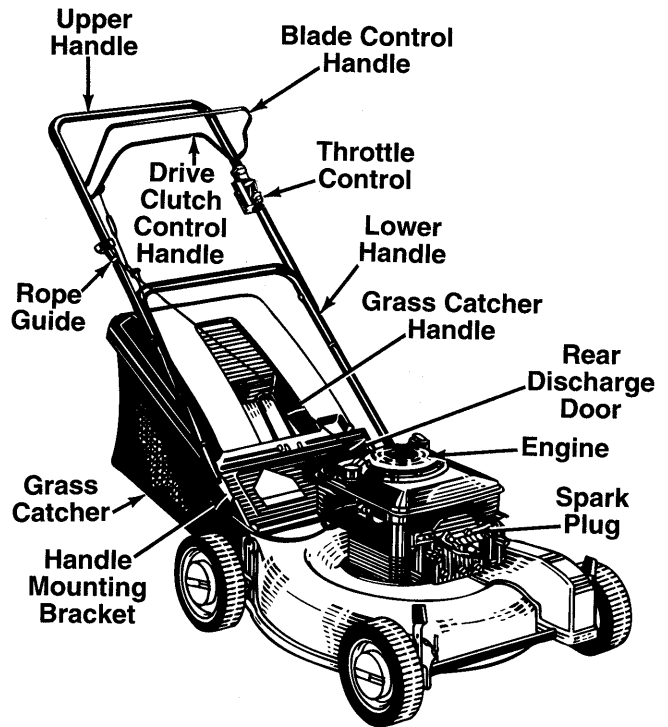
Rope Guide (710-1205)

Hex Lock Nut 1/4-20 Thread (712-0324)

D SECURING THE CABLES



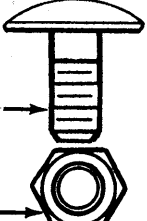
Cable Ties (726-0240)



(Model 458R Shown)

PARTS IDENTIFICATION

E ASSEMBLY OF GRASS CATCHER Models 450R thru 458R (Hardtop Grass Bags Only):



Mounting Bracket (Not Shown) (782-9011)

Phillips Head Screw 1/4-20 x 1/2" Long (710-0286)

Hex Lock Nut 1/4-20 Thread (712-0324)



ASSEMBLY INSTRUCTIONS

IMPORTANT: This unit is shipped **WITHOUT GASOLINE or OIL.** After assembly, service engine with gasoline and oil as instructed in the separate engine manual packed with your unit.

Tools Required for Assembly

- (1) Pair of Pliers
- (1) 1/2" Wrench or Adjustable Wrench
- (1) Phillips Screwdriver
- (1) 7/16" Wrench or Adjustable Wrench

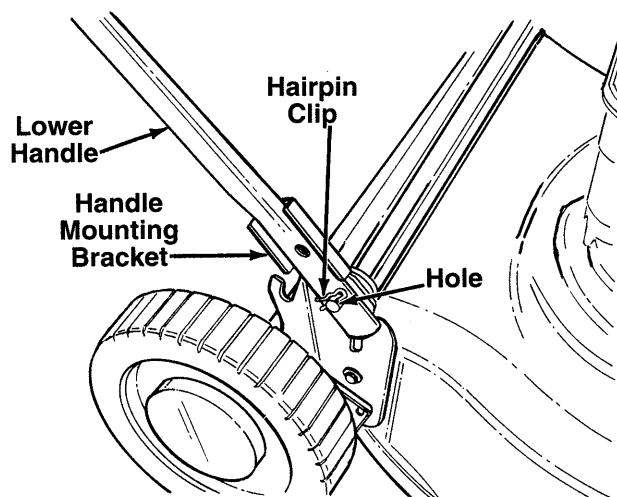


FIGURE 1.

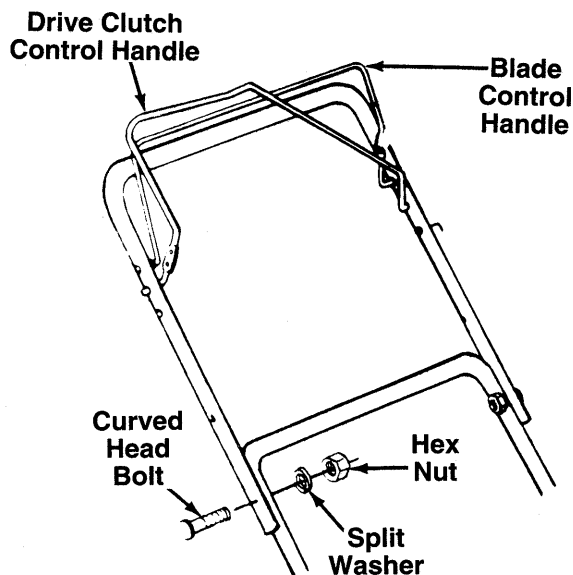


FIGURE 2.

NOTE: Reference to right or left hand side of the mower is observed from the operating position. Refer to parts identification on page 4 for location of parts when assembling the mower.

UNPACKING

1. Remove the lawn mower from the carton by opening the top flaps and lifting the unit out. Be careful of the staples. Make certain all parts and literature have been removed from the carton before the carton is discarded.
2. Disconnect the spark plug wire and move away from the spark plug.
3. Stretch out all control cables to the left side of the mower and place on the floor. Be careful not to bend or kink the cables at any time during assembly.
4. Remove page four from this manual and lay the contents of the hardware pack on the illustration for identification.

ATTACHING THE LOWER HANDLE (Hardware A)

1. Attach the lower handle by placing the bottom holes in the lower handle over the weld pins on the handle mounting brackets on the rear of the deck.
2. Using a pair of pliers, squeeze one leg of the lower handle against the handle mounting bracket. Insert the hairpin clip into the hole in the weld pin. See figure 1. Repeat on other side.

ATTACHING THE UPPER HANDLE (Hardware B)

1. Place the upper handle in position over the lower handle. The control handles (attached to the upper handle) must be positioned as shown in figure 2, on top of the handle.
2. Secure the upper handle to the lower handle using the curved head bolts, split washers and hex nuts as shown.

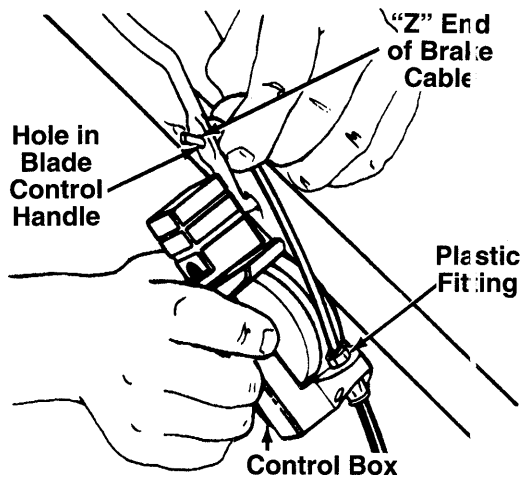


FIGURE 3.

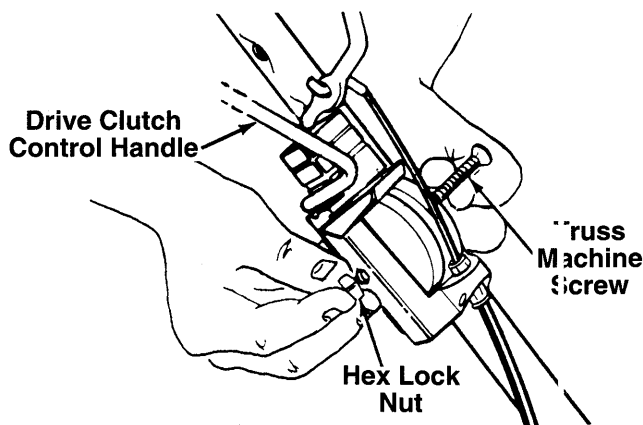


FIGURE 4.

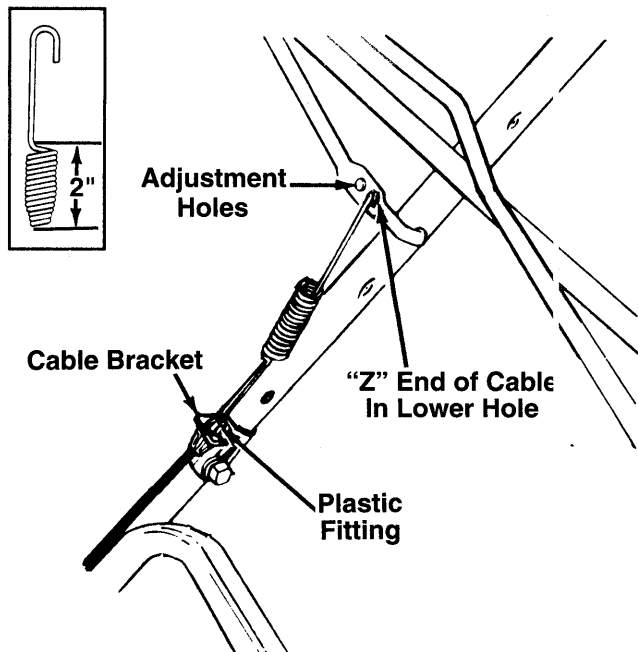


FIGURE 5.

ATTACHING THE CONTROL BOX

← One end of the throttle control cable and one end of the brake cable are attached to the engine. The other ends are attached to the control box. Attach the control box to the upper handle as follows.

1. Remove the truss machine screw and hex lock nut from the middle of the control box using a phillips screwdriver. Place your finger over the hex lock nut to hold it inside the control box so you can unscrew the truss machine screw.
2. Remove the drive clutch control handle from the upper handle (pull right side out of hole in upper handle first, then left side). Make certain blade control handle stays on top of upper handle. Refer to figure 2.
3. Route the control box around the outside of the handle, then bring the box inside the upper handle from underneath.
4. Route the brake cable above the handle. Insert the "Z" end of the brake cable into the control box as shown in figure 3. Push the plastic fitting until it locks into the control box.
5. Holding the control box near the left side of the upper handle (control box must be inside the handle), hook the "Z" end of the brake cable into the control handle from the **outside** to the **inside**.

← See figures 3 and 4.

6. Place the control box on the upper handle just below the end of the blade control handle as shown in figure 4. Secure with hardware removed in step one by placing hex lock nut into the indent on the inside of the control box. Screw the truss machine screw into the hex lock nut.
7. Insert long end (left side) of drive clutch control handle into the hole in the control box as shown in figure 4. Insert the short end (right side) into the hole below the blade control handle.

ATTACHING THE DRIVE CLUTCH CONTROL CABLE

1. The drive clutch cable is attached to the drive cover, and has a spring on one end. Route the cable above the lower handle. Hook the spring on the end of the cable into the lower hole on the drive clutch handle from the inside out as shown in figure 5.

←

2. Pull down on the plastic cable casing, and slip the control wire through the slot in the cable bracket. Push the plastic fitting on the end of the cable casing into the cable bracket, located on the right side of the upper handle.

To adjust the drive clutch control cable, proceed as follows.

1. 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 inches long as shown in figure 5, inset. (Use the ruler on the bottom of page 4 to measure.)

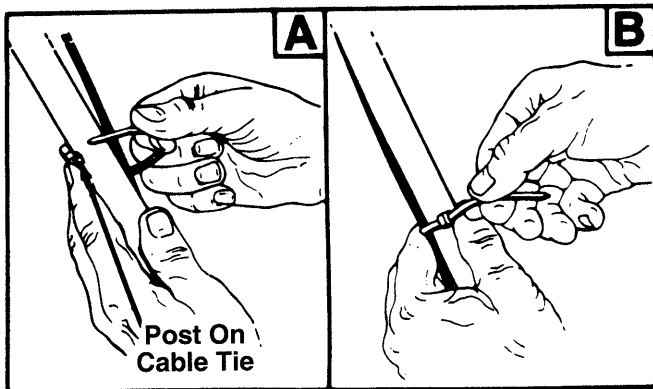


FIGURE 6.

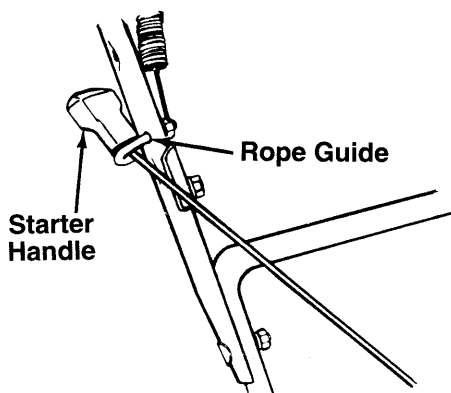


FIGURE 7.

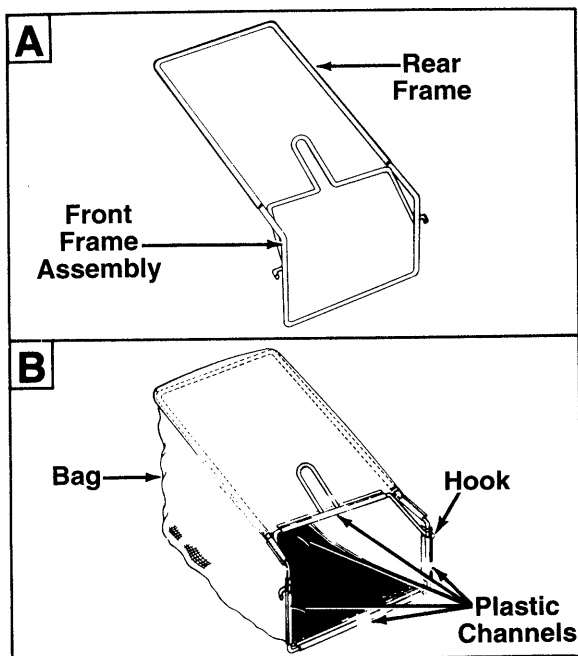


FIGURE 8.

2. If adjustment is necessary, loosen the screw which secures the cable bracket to the upper handle. Slide the cable bracket up or down as necessary. Check the spring length as instructed in step one. Tighten the screw when correct adjustment is reached.



WARNING: Drive clutch adjustment must be checked again before the unit is operated, as described in the Operation Section.

SECURING THE CABLES (Hardware D)

Secure all cables to the handle as follows.



WARNING: When attaching the control cables, the cables must be routed to avoid contact with all sharp edges and hot surfaces to prevent damage to the cables, which will render the controls inoperative.

1. Insert posts on cable ties into holes provided on the handles. The holes may be either on the inside or outside of the handles. Two go on each leg of the lower handle (one near the top and one near the bottom), and one goes on the left side of upper handle. See figure 6A.
2. Secure the cables with the cable ties. See figure 6B.
3. Trim excess ends of cable ties.

ATTACHING THE STARTER ROPE (Hardware C)

1. The starter rope is inside the top of the engine. Additional rope may be wound around the starter handle. If so, unwind the rope from the handle.
2. With the spark plug wire disconnected and grounded, depress the blade control handle and pull the rope out of the engine.
3. Place the rope guide around the starter rope, so the rope guide is positioned as shown (bends downward slightly). See figure 7. Insert the rope guide through the right side of the upper handle, above the cable bracket, and secure with hex lock nut.

FINAL ASSEMBLY OF MOWER

Make certain all nuts and bolts are tightened securely.

ASSEMBLY OF OPTIONAL GRASS CATCHER

NOTE: Make certain the grass bag is turned right side out before assembling (warning label will be on the outside).

Models 440R thru 448R (Soft Grass Bag):

1. Join the rear frame and front frame assembly as shown in figure 8A.
2. Place bag over frame (black plastic side is the bottom of bag). Slip the openings in the side of the plastic channel on bag over the hooks on the grass catcher frame.

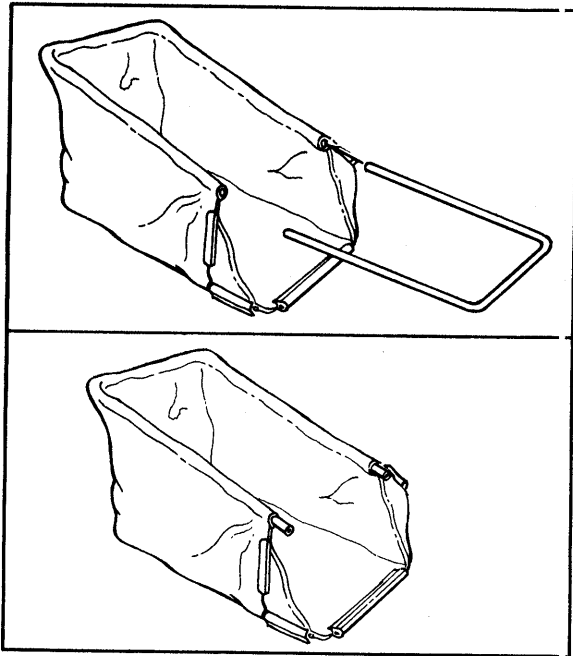


FIGURE 9.

- Secure bag to frame by working the plastic channels on bag over frame as shown in figure 8B. All of the plastic channels except center top of bag attach from the outside of bag. Center top of bag attaches from the inside of bag.

Models 450R thru 458R (Hardtop Grass Bags):

- Insert one end of the rear frame into the cloth channel on the edge of the grass bag. See figure 9. ←

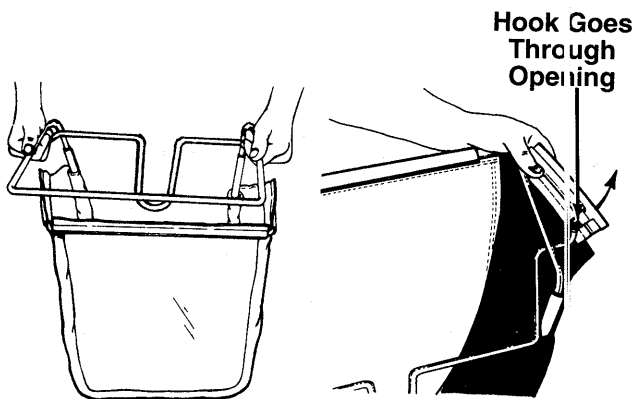


FIGURE 10.

- Slide the ends of the front frame assembly into the ends of the rear frame as shown in figure 10.
- Slip the openings in the side of the plastic channel on bag over hooks on the grass catcher frame. See figure 10. ←
- Secure front of bag to front frame by working the plastic channels on sides and bottom of bag over frame.

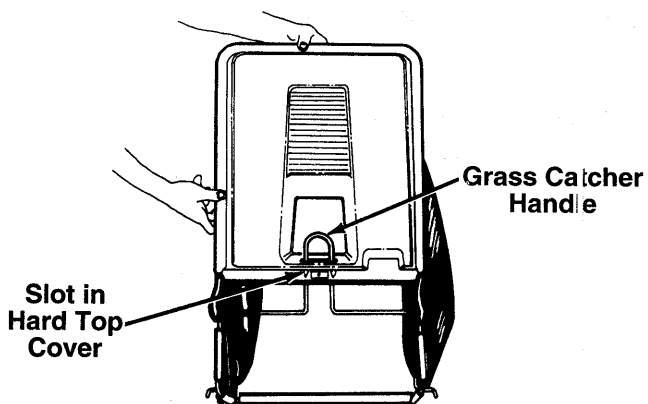


FIGURE 11.

- Slide the handle on the grass catcher frame into the slot in the hardtop cover from beneath the cover. See figure 11. ←

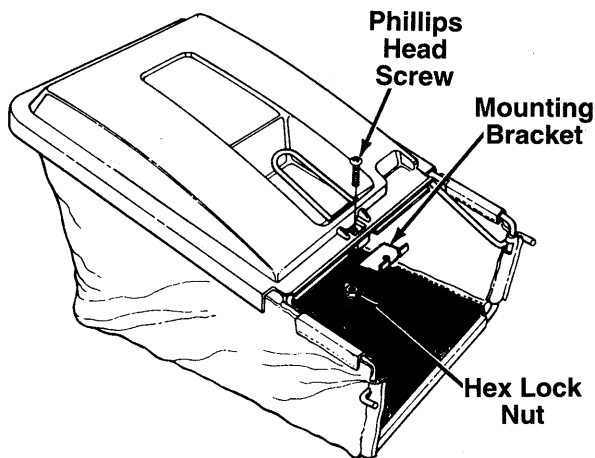


FIGURE 12.

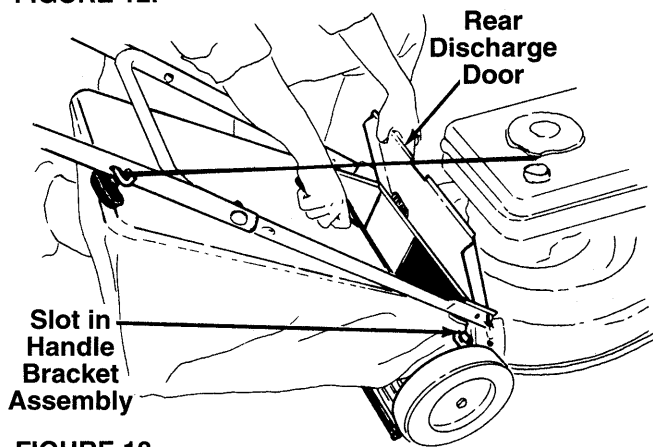


FIGURE 13.

6. Place the mounting bracket under the front of the handle, with the tabs on the bracket facing up. Insert phillips head screw down through the hard-top cover and mounting bracket. Secure with hex lock nut. See figure 12.

ATTACHING GRASS CATCHER TO MOWER

Lift the rear discharge door on the mower. Place the hooks on the grass catcher into the slots in the handle bracket assemblies. See figure 13. Release the rear discharge door.

To remove the grass catcher, lift the rear discharge door on the mower. Lift the grass catcher up, out of the slots in the handle bracket assemblies. Release the rear discharge door.



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

CONTROLS

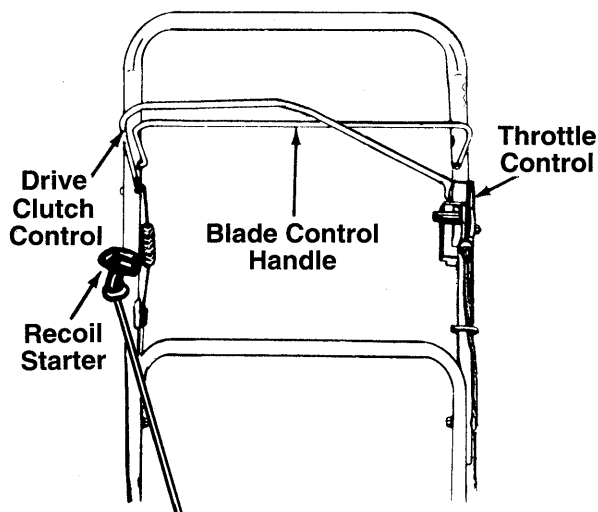


FIGURE 14.

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 14. 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.

THROTTLE CONTROL

The throttle control is located on the side of the upper handle. It is used to regulate the engine speed.



WARNING: The throttle control cannot be used to stop the engine.

RECOIL STARTER

The recoil starter handle is attached to the handle. See figure 14. Stand behind the unit in the operating position to start the unit.

DRIVE CLUTCH CONTROL

Squeezing the drive clutch control engages the drive mechanism to the wheels. Releasing the clutch control stops the wheels from driving. Release the drive clutch control to slow down when negotiating an obstacle, making a turn or stopping. See figure 14.

OPERATION



FIGURE 15.

Keep hands and feet away from the chute area on cutting deck. See figure 15.

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

1. Attach spark plug wire to spark plug. If unit is equipped with a rubber boot over the end of the spark plug wire, make certain the metal loop on the end of the spark plug wire (inside the rubber boot) is fastened securely over the metal tip on the spark plug. See figure 16.

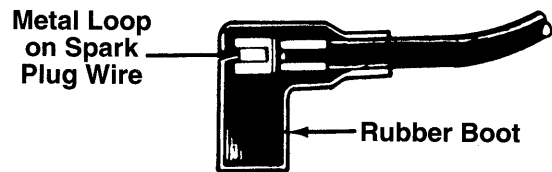


FIGURE 16.

2. Before each use, check for proper drive clutch operation by performing the following 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 (no more than 15 lbs. pressure).

If it does not and the front wheels tend to lock up, the clutch may not be releasing completely. Do not start the engine until readjusting the drive cable as required. Refer to instructions under "Drive Clutch Control Cable" in Assembly Section.

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. Make certain the drive clutch control is adjusted so the drive belt is as loose as possible. Refer to the Adjustment Section.

1. Move throttle control lever all the way forward.
2. If engine is equipped with a primer, prime engine as instructed in the separate engine manual packed with your unit.
3. Standing behind the unit, depress the blade control handle and hold it against the upper handle.
4. Grasp the recoil starter handle and pull back rapidly, extending rope fully. Return it slowly to the rope guide.
5. After engine starts, move throttle control to desired engine speed.

NOTE: If any problems are encountered, refer to the Trouble Shooting Guide on page 16.

TO STOP ENGINE AND BLADE

1. Move throttle control lever to SLOW position.
2. 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.

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

USING YOUR ROTARY MOWER



WARNING: Never operate your unit without either the rear deflector or entire grass catcher assembly in place.

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

For the 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. Blade speed should be adjusted to the condition of the lawn.

For best results, 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.

USING YOUR MULCHER (Mulching Kit is Optional Equipment)

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

To remove the mulching kit, simply lift the rear discharge door and remove the mulching baffle plug (Ref. No. 66 on page 16). Then attach the grass catcher (optional equipment).

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

An adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one hole to another. Simply depress the lever towards wheel and move wheel and lever assembly to desired position. All wheels must be placed in the same relative position. See figure 17.

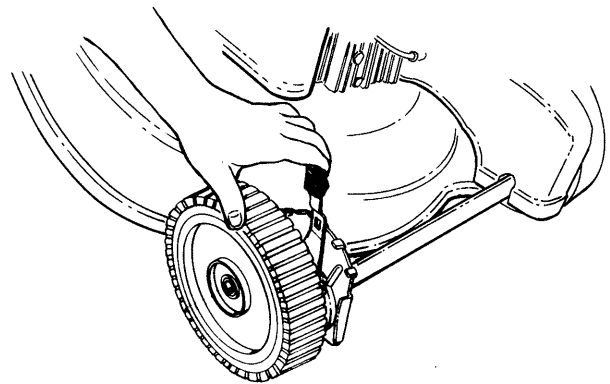


FIGURE 17.

THROTTLE CONTROL ADJUSTMENT

If the throttle control needs adjustment or if it has been replaced, adjust as follows.

1. Remove the screw shown in figure 18A. Remove the cable clamp from the cable.
2. Push the throttle control lever on the handle all the way forward as far as it will go, then back it off one "click." Make certain the throttle control lever remains in this position.
3. Push the control lever on the engine as far toward the rear of the engine as it will go. Secure the cable in this position with the cable clamp and screw.

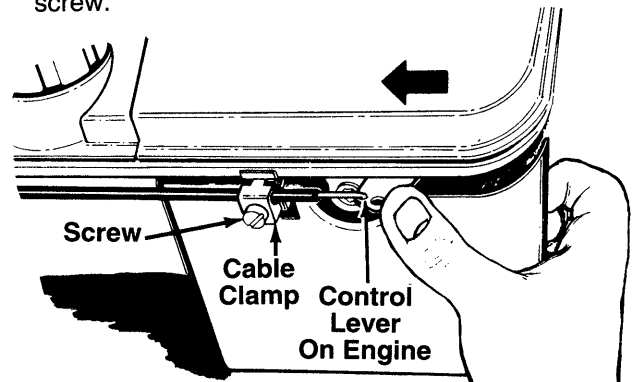


FIGURE 18A.—Quantum Engines

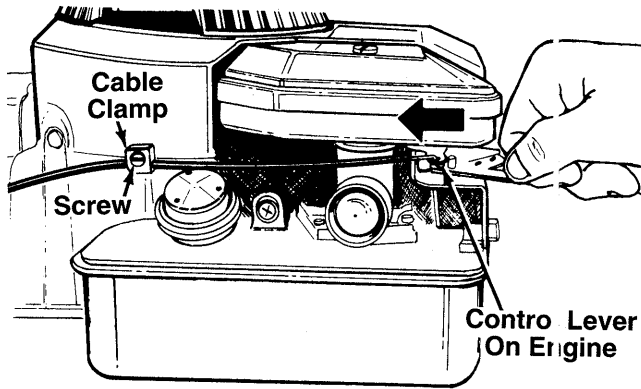


FIGURE 18B.—Sprint and Classic Engines

DRIVE CLUTCH ADJUSTMENT

Periodic adjustment of the belt tension may be required due to normal stretch and wear on the belt. Adjustment may be needed if the wheels seem to hesitate, but the engine maintains the same speed.

To adjust the tension on the belt, first adjust the cable at the cable bracket as instructed in the Assembly section of this manual. If additional adjustment is needed, hook the cable into the higher hole in the drive clutch control handle. Refer to figure 5. Then readjust the cable at the cable bracket. Always be certain to recheck the adjustment before operating the mower.

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.

Minor carburetor adjustments may be required to compensate for differences in fuel, temperature, altitude and load. 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. Refer to the separate engine manual.

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 19. The blade control must operate freely in both directions.

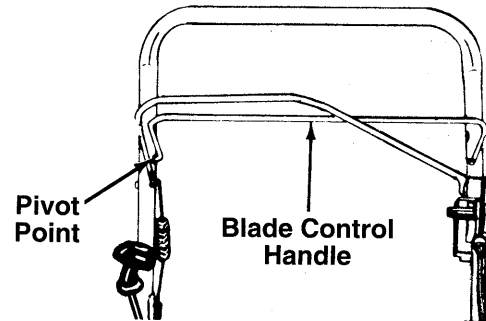


FIGURE 19.

Rear Discharge Door—The torsion springs and pivot points should be lubricated periodically with light oil to prevent any rust or binding. Door must work freely.

Wheels—The wheels require no lubrication. However, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

Engine—Follow engine manual for lubrication instructions.

MAINTENANCE



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

NOTE: When tipping the unit, empty the fuel tank and keep engine spark plug side up.

TROUBLE SHOOTING

Refer to page 16 of this manual for trouble shooting information.

CUTTING BLADE

When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag to grasp the cutting blade. Remove the bolt and bell washer which hold the blade and adapter to the engine crankshaft. Remove the blade and adapter from the crankshaft.

If the blade or blade adapter needs replacing, remove the two small bolts, lock washers and nuts which hold the blade to the adapter.



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

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

It is recommended that the blade always be removed from the adapter for the best test of balance.

The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.

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. Lubricating the bolt holes, bolts and inner surface of the nuts with light oil is also recommended. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.

Blade Mounting Torque

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

Blade Adapter Bolts: 200 in. lbs. min., 350 in. lbs. max.

To insure 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 at the next cutting.

The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected).

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.

REAR FLAP REPLACEMENT

The rear flap is attached to the back of the mower deck, and is designed to minimize the possibility that objects will be thrown from the rear of the mower toward the operator. If the rear flap becomes damaged, replace as follows.

To remove the old rear flap, cut off the flat end of the wire rod which secures it to the deck using a pair of side-cutters. Attach the new rear flap using the new rod provided with the rear flap, bending the ends of the rod over to secure.

BELT REMOVAL AND REPLACEMENT

1. Disconnect the spark plug wire and ground it against the engine.
2. Drain the fuel tank or place a piece of plastic beneath the cap to prevent gasoline leakage.
3. Tip the mower back on its handle. Block securely.
4. Remove the belt cover by removing three self-tapping screws. See figure 20.
5. Unhook "Z" end of drive cable from idler bracket assembly. See figure 20.
6. Remove idler pulley from idler bracket by removing the shoulder bolt, flat washer, cupped washer and hex nut. See figure 20.

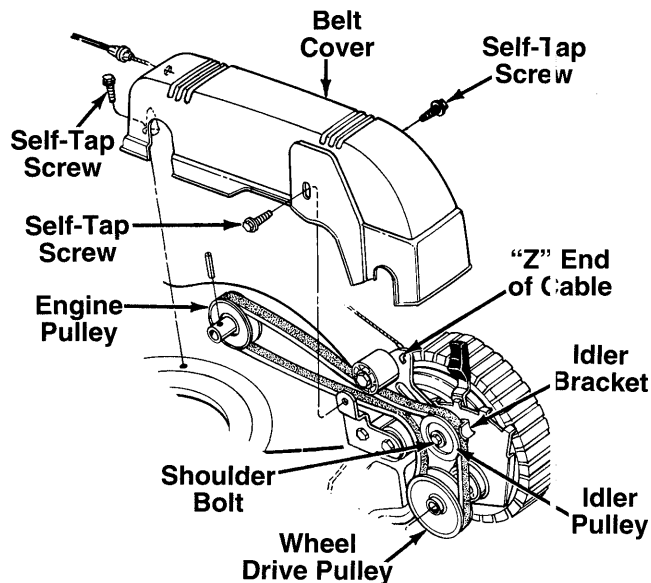


FIGURE 20.

NOTE: Grease needle bearing in idler pulley before reassembling to unit.

7. Remove left hand wheel assembly from pivot plate assembly by removing hub cap, hair pin clip and flat washer. Remove wheel.
8. With a screwdriver pry "E" ring off of front axle. Slide off spur gear, spring pin, flat washer and wheel dust cap. See figure 21.

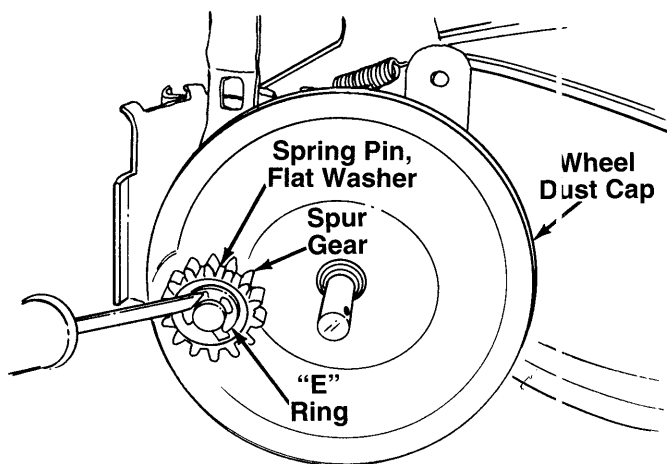


FIGURE 21.

9. Using two 9/16" wrenches, remove the two hex bolts, cupped washers and hex nuts which secure the height adjuster assembly to the deck. See figure 22. Remove height adjuster assembly from unit.

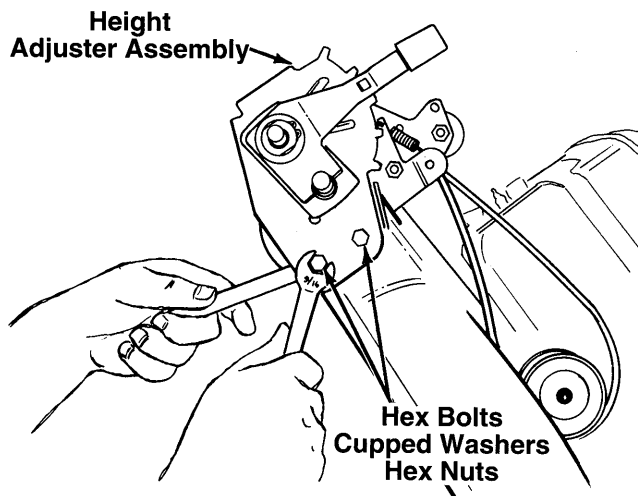


FIGURE 22.

10. Roll the belt off the engine pulley and wheel drive pulley.
11. Clean and grease front drive shaft.
12. Reassemble in reverse order with new belt. (Part No. 754-0271)
13. Follow the instructions on page 6 under "Attaching the Drive Clutch Control Cable" for proper adjustment of drive cable.

NOTE: When reassembling the height adjuster assembly, make certain the extruded hole in the height adjuster is positioned in the deck properly. See figure 23. Make certain to tighten all nuts and bolts securely. If plastic was placed under the gas cap, be certain to remove it.

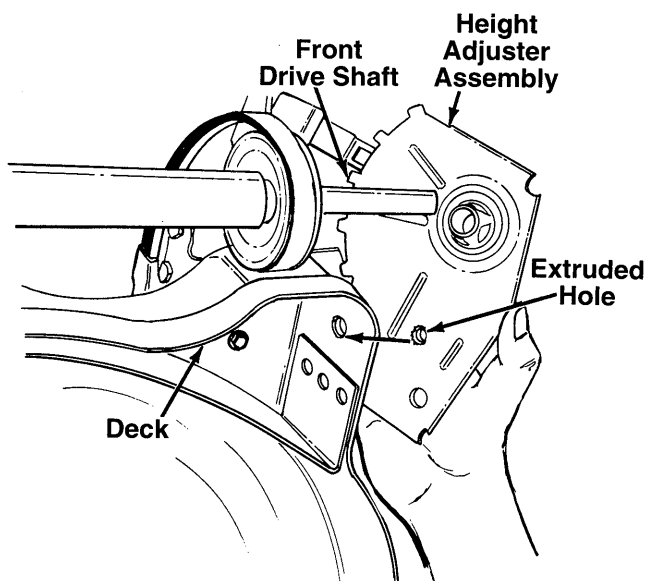


FIGURE 23.

OFF-SEASON STORAGE

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

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

OPTIONAL MULCHING KIT AVAILABLE

Mulching Kit model 190-082 is available as optional equipment for the mowers shown in this manual. The special high lift mulching blade and baffles will pulverize the grass clipping, making it unnecessary to bag the grass.

NOTE: The use of any accessory on this Rotary Mower other than those manufactured by the mower manufacturer is **not** recommended.



WARNING: DO NOT operate the mower without the entire grass catcher or rear discharge door in place. DO NOT operate the mower without the protective shield on the rear of the deck in place.

NOTE: Under normal usage bag material is subject to wear and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

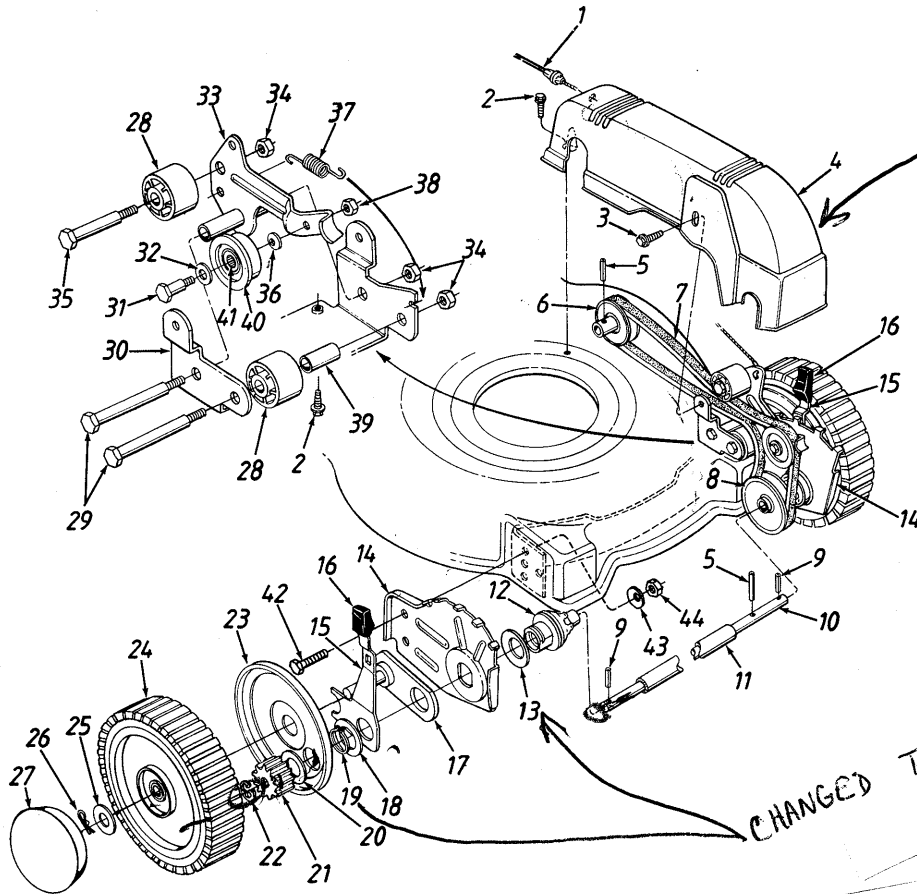
TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	<ol style="list-style-type: none"> 1. Blade control handle disengaged. 2. Spark plug wire disconnected. 3. Throttle control lever not in START position. 4. Fuel tank empty, or stale fuel. 5. Blocked fuel line (if so equipped). 6. Faulty spark plug. 7. Engine flooded. 	<ol style="list-style-type: none"> 1. Engage blade control handle. 2. Connect wire to spark plug. 3. Move throttle lever to START position. 4. Fill tank with clean, fresh gasoline. 5. Clean fuel line. 6. Clean, adjust gap or replace. 7. Remove spark plug, dry the plug, and crank engine with plug removed and throttle in off position. Replace spark plug, connect wire and resume starting procedures.
Engine runs erratic	<ol style="list-style-type: none"> 1. Unit running in START position. 2. Spark plug wire loose. 3. Blocked fuel line (if so equipped) or stale fuel. 4. Vent in gas cap plugged. 5. Water or dirt in fuel system. 6. Dirty air cleaner. 7. Carburetor out of adjustment. 	<ol style="list-style-type: none"> 1. Move throttle lever to FAST position. 2. Connect and tighten spark plug wire. 3. Clean fuel line; fill tank with clean, fresh gasoline. 4. Clear vent. 5. Drain fuel tank. Refill with fresh fuel. 6. Clean air cleaner. † 7. Adjust carburetor. †
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. Adjust carburetor. †
Occasional skip (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close. 2. Carburetor idle mixture adjustment improperly set. 	<ol style="list-style-type: none"> 1. Adjust gap to .030" 2. Adjust carburetor. †
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. 2. Adjust carburetor. † 3. Clean air cleaner. †
Mower will not drive	<ol style="list-style-type: none"> 1. Drive clutch cable out of adjustment. 2. Wet grass, causing wheels to slip. 	<ol style="list-style-type: none"> 1. Adjust drive clutch cable (see Adjustment section). 2. Do not mow when grass is wet; wait until later to cut.
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.
Mower will not discharge grass	<ol style="list-style-type: none"> 1. Engine speed too low. 2. Wet grass. 3. Excessively high grass. 	<ol style="list-style-type: none"> 1. Set throttle between 3/4 and full throttle. 2. Do not mow when grass is wet; wait until later to cut. 3. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath (1/2 width).
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.

†Refer to separate engine manual packed with your unit.

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

Models 440R thru 458R



PARTS LIST FOR MODELS 440R THRU 458R ROTARY MOWERS

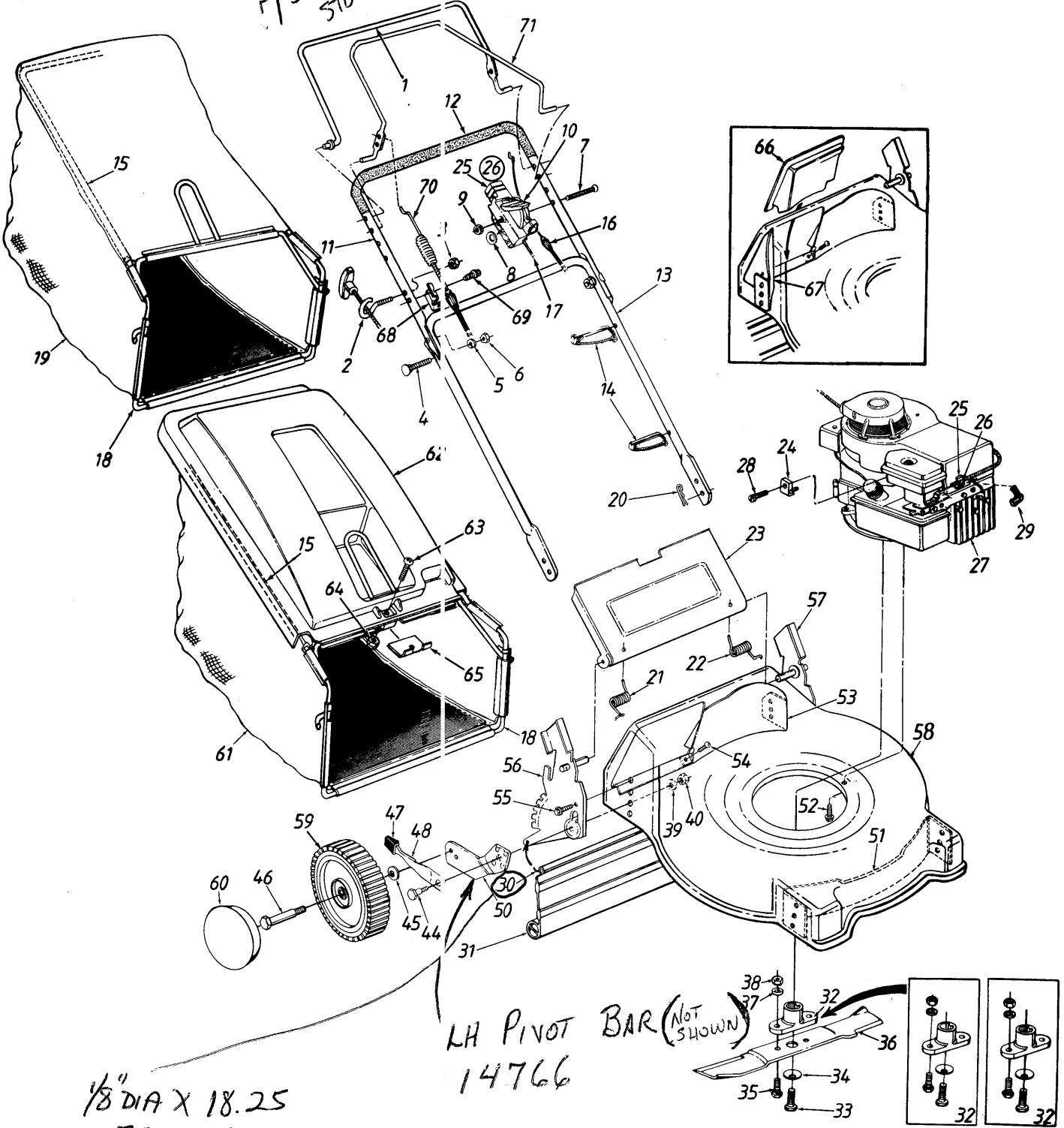
REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	746-0906	N	S.P. Cable 44.75" Lg.	21	748-0357	N	14-T Spur Gear
2	710-0599		Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5" Lg.	22	716-0104		E-Ring
3	710-0653		Hex Wash. Hd. Tap Scr. 1/4-20 x .38" Lg.	23	782-7551	N	Wheel Dust Cap
4	782-7550	N	Belt Cover	24	634-0021	N	Front Wheel Ass'y.
5	715-0246		Spring Pin 3/16" Dia. x 1.25" Lg.	25	736-3013		FI-Wash. .531" I.D. x 1" O.D.
6	756-0963	N	3/8" "V"-Pulley 2.75" O.D.	26	714-0104		Hairpin Clip 5/16" Dia.
7	754-0271		"V"-Belt	27	720-0249		Hub Cap
8	756-0964	N	3/8" "V"-Pulley 2.44" O.D.	28	656-0010	N	Idler Ass'y.
9	715-0159	N	Spring Pin 3/16" Dia. x .875" Lg.	29	738-0873		Shld. Bolt .374" Dia. x 1.94"
10	738-0872	N	Front Axle	30	782-7524	N	Idler Pivot Brkt.
11	731-1361	N	Axle Shroud	31	738-0826		Shld. Bolt .375" Dia. x .4"
12	682-0015	N	Front Bearing Ass'y.	32	736-0344		FI-Wash. .39" I.D. x 1" O.D.
13	736-0450		Bell-Wash. 1.01" I.D. <i>WAVE WASHER</i>	33	682-0014	N	Idler Brkt. Ass'y.
14	782-0512	N	Height Adj. Plate—R.H.	34	712-0271		Hex Sems Nut 1/4-20 Thd.
	782-0511	N	Height Adj. Plate—L.H.	35	738-0572		Shld. Bolt 3/8" Dia. x 1.16"
15	732-0706	N	Spring Lever—R.H.	36	736-0270		Bell-Wash. .265" I.D. x .75" O.D.
	732-0707	N	Spring Lever—L.H.	37	732-0709	N	Spring Extension 1.29" Lg.
16	720-0190		Spring Lever Knob	38	712-0138		Hex Nut 1/4-28 Thd.
17	682-0509		Height Adj. Pivot Plate Ass'y.	39	750-0807		Spacer .385" I.D. x .625" O.D.
18	736-0474	N	DD Washer 1.5" O.D.	40	756-0558		FI-Idler 1.5" O.D.
19	716-0102		Snap Ring	41	741-0556		Needle Brg. .375" I.D.
20	736-0272		FI-Wash. .51" I.D. x 1" O.D.	42	710-0253		Hex Bolt 3/8-16 x 1" Lg.
				43	736-0331		Bell-Wash. .39" I.D. x 1.13" O.D.
				44	712-0798		Hex Nut 3/8-16 Thd.*

Models 440R thru 458R

NOTE: The engine is not under warranty by the mower manufacturer. . . If repairs or service is needed on the engine, please contact your nearest authorized engine service outlet. Check the "Yellow Pages" of your telephone book under "Engines-Gasoline."

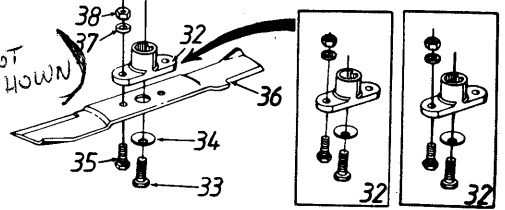


751-0345A
STD ENG. - MUFFLER DEFLECTOR



1/8" DIA X 18.25
732-0663
IN SERV. BEND ENDS
OVER AFTER INSTALLING

LH PIVOT BAR (NOT SHOWN)
14766



PARTS LIST FOR MODELS 440R THRU 458R ROTARY MOWERS

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	747-0824	N	Control Handle Ass'y.	34	736-0452		Bell-Wash. .39" I.D. (Used w/Keyed Adapter)
2	710-1205		Rope Guide Bolt				
3	712-0324		Hex L-Nut 1/4-20 Thd.		736-0453		Bell-Wash. .46" I.D. (Used w/Splined Adapter)
4	710-0671		Curved Carr. Bolt 5/16-18 x 1.38" Lg.	35	710-1055		Hex Bolt 3/8-24 x 1" Lg.
5	736-0119		L-Wash. 5/16" I.D.*	36	742-0306A		21" Blade
6	712-0267		Hex Nut 5/16-18 Thd.*		742-0563		21" Mulching Blade (Optional)
7	710-0605	N	Oval C-Sunk Mach. Scr.	37	736-0169		L-Wash. 3/8" I.D.*
8	736-0501	N	Spr. Wash. .66" I.D.	38	712-0241		Hex Nut 3/8-24 Thd.
9	712-0291		Hex L-Nut 1/4-20 Thd.	39	736-0356		Bell-Wash. .39" I.D. x 1.38"
10	746-0876	N	Throttle Lever	40	712-0798		Hex Nut 3/8-16 Thd.*
11	749-0538C	N	Upper Handle	44	738-0507B		Shld. Bolt .5" Dia. x .357"
12	720-0226		Foam Grip (Optional)	45	736-0105		Bell-Wash. .38" I.D. x .88" O.D.
13	749-0372B		Lower Handle	46	738-0102		Axle Bolt
14	726-0240		Cable Tie	47	720-0190		Spring Lever Knob
15	764-0310		Rear Catcher Frame	48	732-0417A		Spring Lever
16	746-0550		Control Cable—39" (440R, 442R, 450R, 452R)	50	14765		Pivot Bar R & L
	746-0553		Control Cable—36" (446R, 448R, 456R, 458R)	51	782-5002		Front Baffle
				52	710-0654A		Hex L-Wash. Hd. Scr. 3/8-16 x 1" Lg.
17	746-0842	N	Throttle Control Wire—51" (440R, 442R, 450R, 452R)	53	782-5003		Rear Baffle
	746-0843	N	Throttle Control Wire—55" (446R, 448R, 456R, 458R)	54	710-1017		Torx Mach. AB-Tap Scr. 1/4 x .62" Lg.
				55	710-0892		Hex L-Wash. Hd. AB-Tap Scr. 1/4 x .62" Lg.
18	764-0311		Front Catcher Frame	56	682-0503		Handle Brkt. Ass'y.—R.H.
19	764-0309		Grass Bag†	57	682-0502		Handle Brkt. Ass'y.—L.H.
20	714-0104		Int. Cotter Pin 5/16" Dia.	58	782-0020	N	21" R.D. Deck
21	732-0678		Door Spring—R.H.	59	634-0020	N	Wheel Ass'y. Comp.
22	732-0677		Door Spring—L.H.	60	720-0249	N	Hub Cap (Optional)
23	782-7000		Rear Discharge Door	61	764-0433	N	Grass Bag††
24	751-0568		Cable Clamp	62	731-1322	N	Hard Top Cover††
25	746-0875	N	Throttle Body	63	710-0286		Pan Hd. Mach. Scr. 1/4-20 x .5" Lg.††
26	811-00185	N	Throttle Box Comp. (Incl. Ref. 7, 8, 9, 10, 25)	64	712-0324		Hex Nylon L-Nut 1/4-20 Thd.††
27	—		Engine	65	782-9011	N	Mounting Bracket††
28	710-1237		Hex Wash. Hd. Scr. #10-32 x .62" Lg.	66	782-5007	N	Mulching Baffle Plug (Optional)
29	735-0639		Spark Plug Boot (Optional)	67	782-5004	N	Mulching Baffle—R.R. (Optional)
30	732-0700	⁰⁶⁶³ N	Wire Rod	68	16309A		Cable Mtg. Brkt.
31	731-1236		Rear Flap	69	710-0726		Hex Wash. AB-Tap Scr. 5/16" x .75" Lg.
32	753-0484		Blade Adapter Kit (Keyed)	70	746-0906	N	S.P. Cable 44.75" Lg.
	753-0485		Blade Adapter Kit (Splined)	71	747-0854	N	Drive Control Lever
33	710-1044		Hex Bolt 3/8-24 x 1.5" Lg. (Used w/Keyed Adapter)				
	710-0757		Hex Bolt 7/16-20 x 1.5" Lg. (Used w/Splined Adapter)				

†Models 440R thru 448R only.
††Models 450R thru 458R only.

*For faster service obtain standard nuts, bolts and washers locally.
If these items cannot be obtained locally, order by part number
and size as shown on parts list.

CODE: N notates a **new part** (not previously existing). A three digit
number is the **color code**. Specify color code as shown at right
if color or finish is important when ordering parts. [i.e., 638 for
Red Finish].

NOTE: This instruction manual covers various models, and all
specifications shown do not necessarily apply to your model.
Specifications subject to change without notice or obligation.

Color Codes

456—Radiant Tangerine	637—Black
460—Green Flake	638—Red
483—Charcoal Gray	640—Green
498—Yellow	646—CM Blue
499—Beige	657—Teal
629—Silver Flake	

FOR REPLACEMENT PARTS, CONTACT:
SERVICE DEPARTMENT • P.O. BOX 360900 • CLEVELAND, OHIO 44136