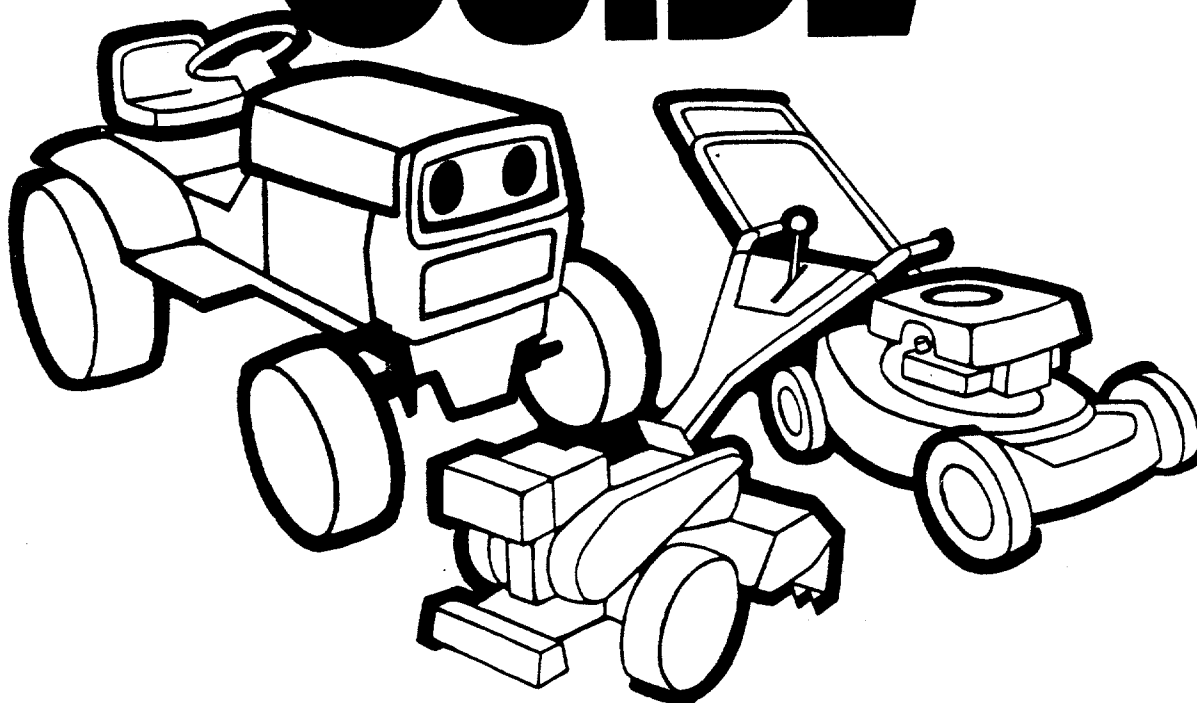


\$1.00

OWNER'S GUIDE



**21"
CONVERTIBLE
ROTARY
MOWERS**

**Model Numbers
117-104-000
117-114-000**

IMPORTANT: Read Safety Rules and Instructions Carefully

INDEX

Slope Gauge	3
Contents of Hardware Pack	4
Rules for Safe Operation	5
Assembly	6
Controls	11
Operation	11
Adjustments	13
Lubrication	14
Maintenance	14
Off-Season Storage	16
Illustrated Parts	18
Repair Parts Lists	19, 20
Trouble Shooting Chart	21
Parts Information	Back Cover

Dear Customer,

So often throughout the year we are all in a rush to meet our daily obligations.

However, we at MTD Products Inc are taking a quick moment out to say...

"Thank you for your business."

Sincerely,
MTD PRODUCTS INC



INSTRUCTIONS GIVEN WITH THIS SYMBOL ARE FOR PERSONAL SAFETY. BE SURE TO FOLLOW THEM.

LIMITED WARRANTY

For one year from the date of original retail purchase, MTD PRODUCTS INC will either repair or replace, at its option, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser. Transportation charges for any parts submitted for replacement under this warranty must be paid by the purchaser unless such return is requested by MTD PRODUCTS INC.

This warranty will not apply to any part which has become inoperative due to misuse, excessive use, accident, neglect, improper maintenance, alterations, or unless the unit has been operated and maintained in accordance with the instructions furnished. This warranty does not apply to the engine, motor, battery, battery charger or component parts thereof. Please refer to the applicable manufacturer's warranty on these items.

This warranty will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor. If you do not know the dealer or distributor in your area, please write to the Customer Service Department of MTD.

The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by MTD.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

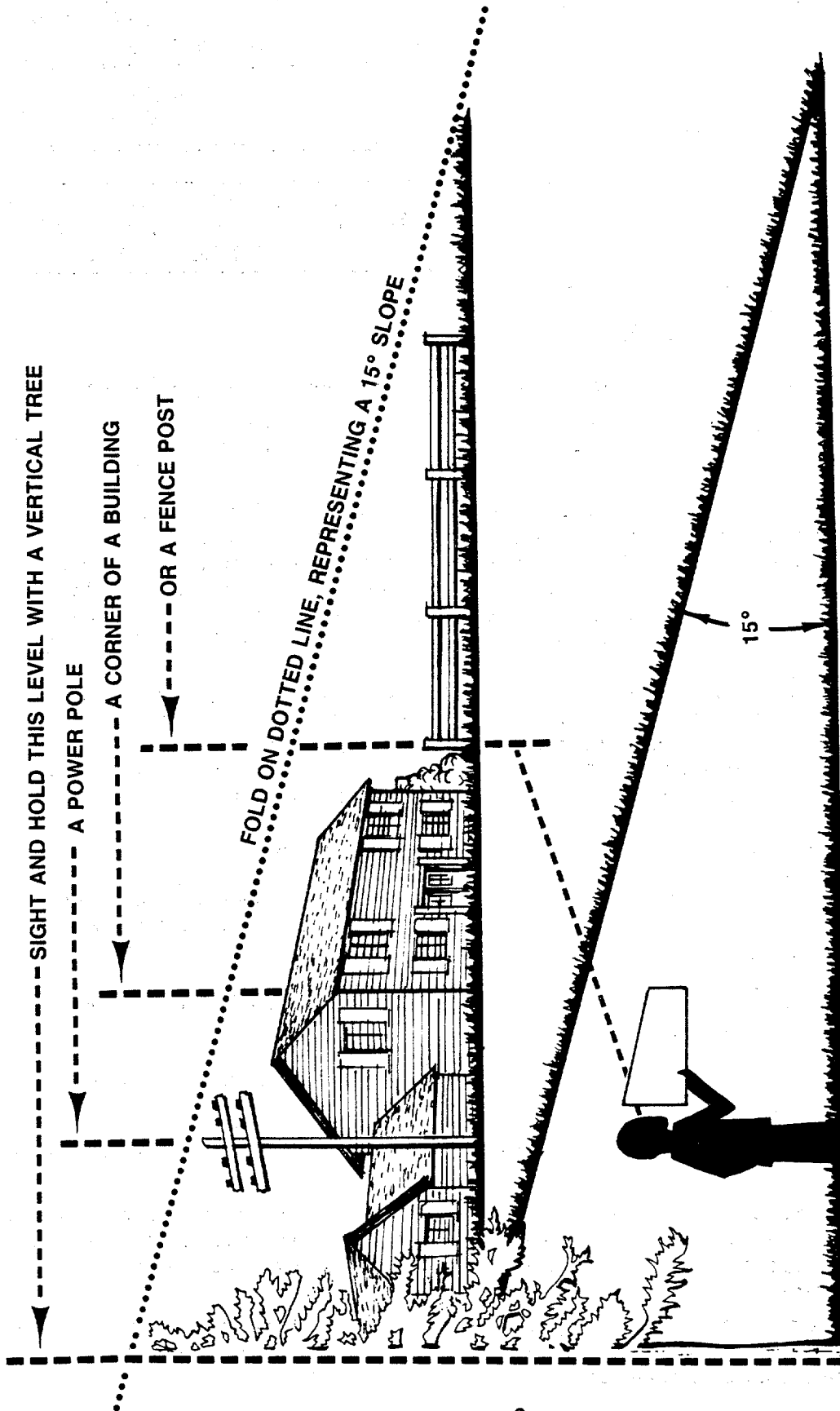
WARNING: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester 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 muffler is available at your nearest engine authorized service center.

SLOPE GAUGE

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

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



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2½ 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.

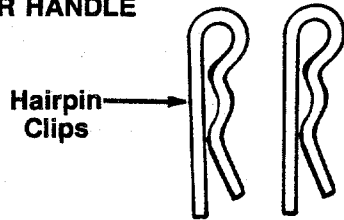
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

CONTENTS OF HARDWARE PACK

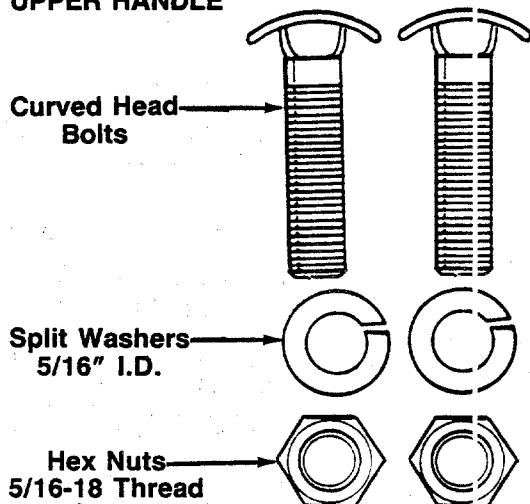
Remove this sheet from your owner's manual and lay the hardware on the illustration for identification purposes. After assembly, keep the Slope Gauge which is on the reverse side of this sheet for future use.

(Hardware pack may contain extra items which are not used on your unit.)

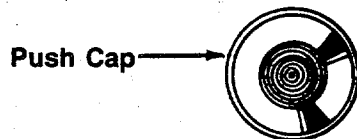
A ATTACHING THE LOWER HANDLE



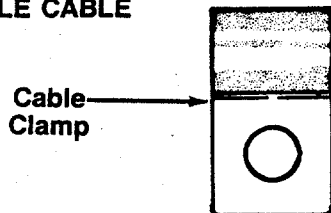
B ATTACHING THE UPPER HANDLE



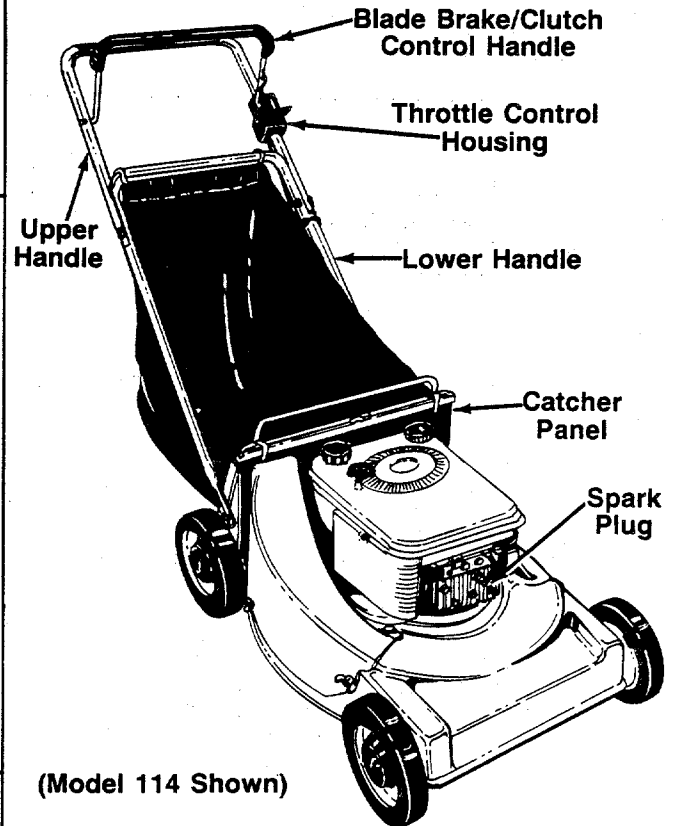
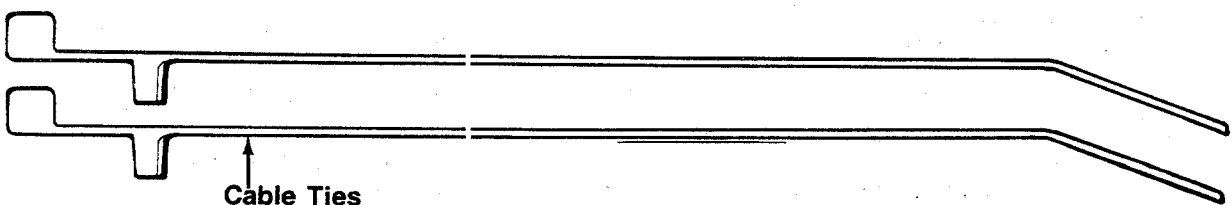
C ATTACHING THE BLADE BRAKE/CLUTCH CABLE



D ATTACHING THE THROTTLE CABLE

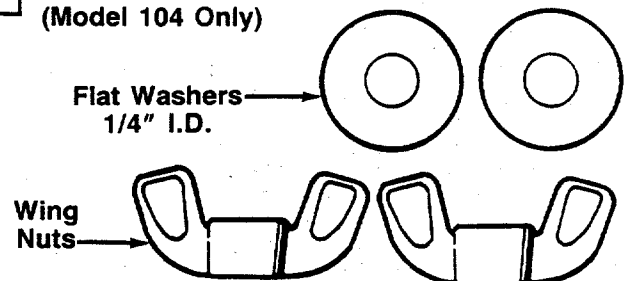


E SECURING THE CABLES



PARTS INFORMATION


F ATTACHING THE CHUTE DEFLECTOR (Model 104 Only)



IMPORTANT

RULES FOR SAFE OPERATION



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.**



ANGER

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 manual 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.
3. Never allow children to operate a power mower. 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.
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 to avoid entanglement in the moving parts. Never operate a unit in bare feet, sandals, or sneakers.
4. Check the fuel 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 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.
7. Never attempt to make a wheel or cutting height adjustment while the engine is running.
8. Never operate the equipment 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. 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. Do not operate this mower with the chute door open, unless the complete grass catcher is properly mounted on the mower.



MAINTENANCE AND STORAGE

1. Check the blade and engine mounting bolts at frequent intervals for proper tightness.
2. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
3. Never store the equipment with gasoline in the tank inside of a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
4. To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
5. Check the grass catcher bag frequently for wear or deterioration. For safety protection, replace only with new bag meeting original equipment specifications.

Rules for Safe Operation (Continued)

BLADE BRAKE/CLUTCH MAINTENANCE

NOTE: Any required repair work on the blade brake/clutch should be performed by an authorized service dealer. If you cannot locate an authorized service dealer, contact the manufacturer.

1. The blade brake/clutch hand control 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. This hand control must operate freely in both directions.
2. Striking a solid object can cause damage to the blade brake/clutch or to the engine crankshaft. Extensive vibration of the mower during operation is an indication of damage and the unit should be promptly inspected and repaired.
3. A leak in the lower engine crankshaft oil seal could expose the blade brake/clutch friction pads to excess oil resulting in blade or brake slippage, which could increase the stopping time of the blade. Oil collection on the floor beneath the mower during storage may be an indication of an oil seal leak. The unit should be checked by an authorized service dealer.
4. Periodically inspect the inner control cable in the area where it attaches to the hand control. If the cable becomes frayed, it could cause the blade brake/clutch to operate improperly. Also, be careful to avoid pinching the blade brake/clutch control cable when storing the handle.

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.

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

ASSEMBLY INSTRUCTIONS

This owner's manual covers both side discharge (Model 104) and top discharge (Model 114) rotary mowers. Follow only the instructions which pertain to your style mower.

Tools Required for Assembly

- (1) 1/2" Wrench*
- (1) 5/16" Wrench or Nutdriver*
- (1) 7/16" Wrench*
- *Or one 6" Adjustable Wrench.

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 and ground the spark plug wire against the engine. Check beneath the deck for any cardboard packaging. Remove if present.
3. Stretch out all control cables 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. For shipping purposes your mower is set with the wheels in the lowest cutting height position. Raise the mower to the highest setting for assembly of lower handle.
2. Attach the lower handle by placing the bottom holes in the lower handle over the weld pins on the handle wheel bracket assemblies on the rear of the deck. Make certain the instruction label on the lower handle can be read from the operating position. Secure by placing two hairpin clips in inner hole on weld pins. See figure 1.

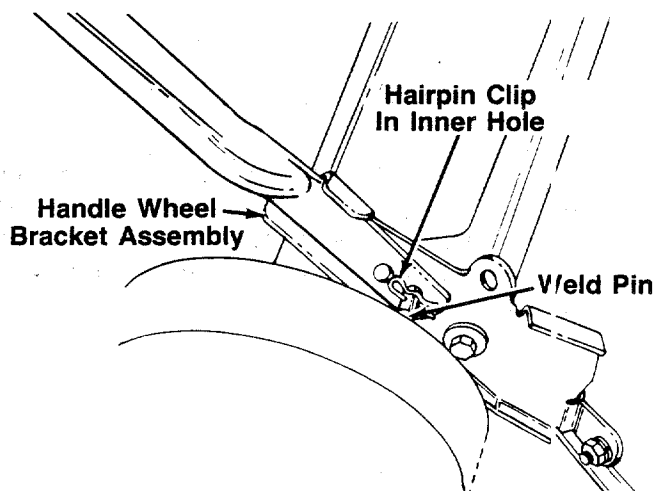


FIGURE 1.

NOTE

It may be necessary to bend the ends of the lower handle inward slightly to obtain a snug fit against the handle wheel bracket assemblies.

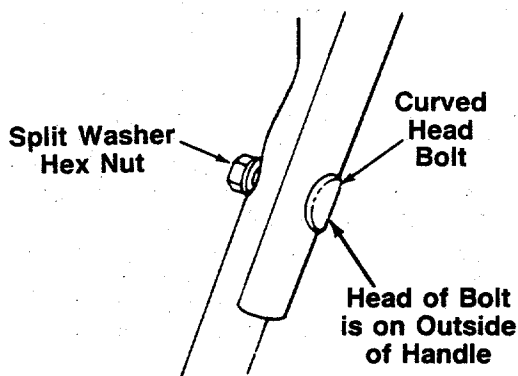


FIGURE 2.

ATTACHING THE UPPER HANDLE (Hardware B)

Place upper handle in position over lower handle. The label on the throttle control housing and the control lever must be facing up. Secure upper handle with two curved head bolts, split washers and hex nuts. See figure 2.

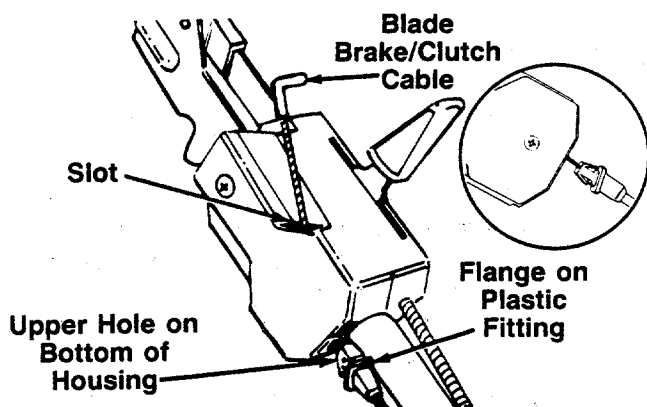


FIGURE 3.

ATTACHING THE BLADE BRAKE/CLUTCH CABLE (Hardware C)

The blade brake/clutch cable is the cable which has an "L" fitting on the loose end, and is attached to the blade brake/clutch underneath the deck.

1. Route the blade brake/clutch cable under the lower handle and inside the handle mounting bracket. Place end of cable into the upper hole on the bottom of the control housing, and through the slot on the side of the housing as shown. The angle of the plastic flange must be positioned downward as shown in figure 3. Be careful not to bend or kink the cable at any time.
2. Push the plastic flange until it locks into the control housing.



The cable must be assembled as shown for proper blade brake/clutch operation.

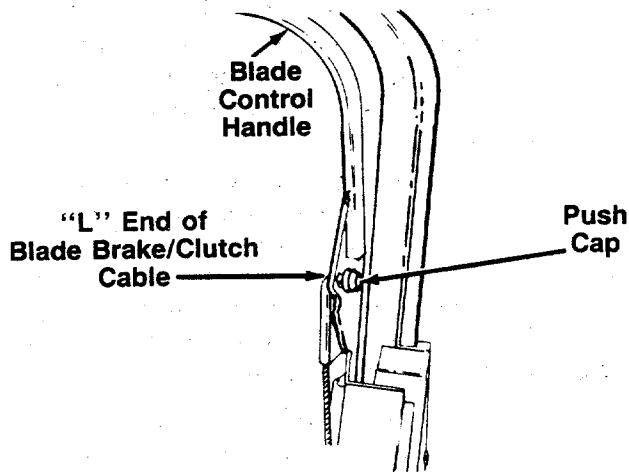


FIGURE 4.

3. Insert the "L" end of the blade brake/clutch cable into the hole in the blade brake/clutch control handle, from the inside to the outside as shown in figure 4. Hold the end of the cable, and press push cap on by hand.

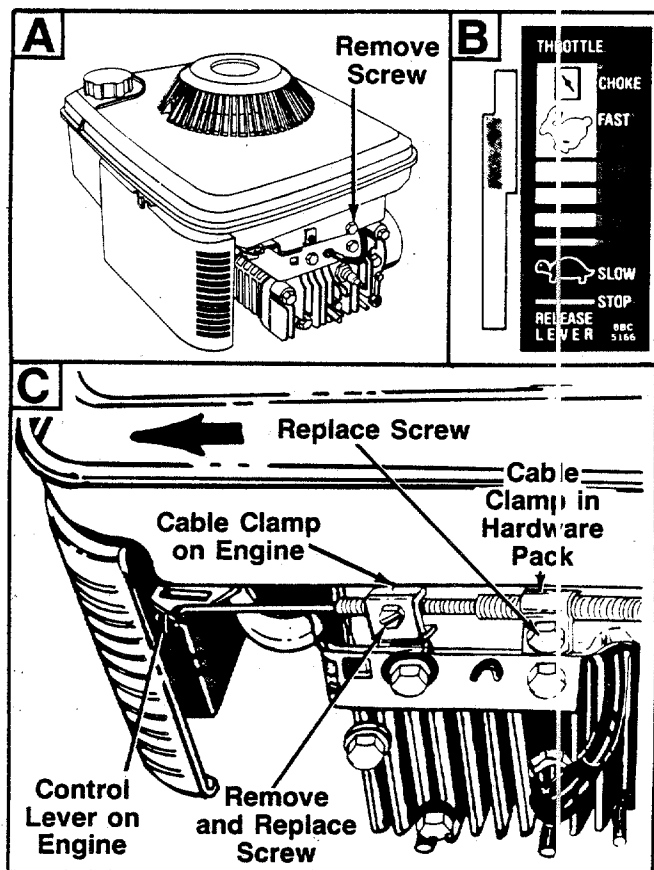


FIGURE 5.

ATTACHING THE THROTTLE CABLE (Hardware D)

1. Using a 7/16" wrench, remove the screw on the engine shown in figure 5A.
2. Move throttle control lever until it stops in FAST position (do not push all the way forward to CHOKE position). See figure 5B.
3. The throttle control cable is attached to the upper handle. Route the throttle control cable under the lower handle and inside the handle mounting bracket. Hook the "Z" end of the throttle control cable into the hole in the control lever on the engine. See figure 5C.
4. Using a 5/16" wrench or nutdriver, remove the screw on the cable clamp shown in figure 5C. Slip the control casing under the clamp. Replace the screw (casing should be above the screw), but do not tighten screw (cable must still move freely beneath the clamp).
5. Slide the control lever on the engine as far toward the outside of the engine as it will go easily (just until resistance is felt) as shown in figure 5C. (Do not force it into the extreme outside position, which is the CHOKE position.) Tighten the screw to secure the throttle control cable in this position.
6. Loosen the screw on the clamp on the side of the engine. Slip the cable casing under the clamp to secure the cable **away from the muffler**. Be careful not to bend or kink the cable. Tighten the screw.
7. Secure cable casing to the front of engine with cable clamp provided in hardware pack and screw removed from engine in step 1. Do not overtighten.

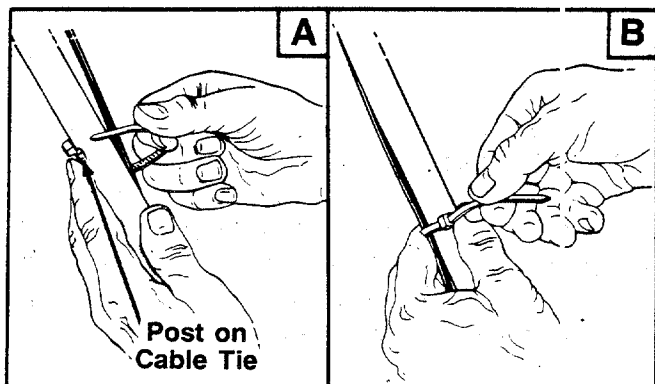


FIGURE 6.

SECURING THE CABLES (Hardware E)

Secure control cables to the left side of the handle as follows.

- A. Insert posts on cable ties into holes provided on the lower handle, one near the top and one near the bottom of lower handle. The holes may be either on the inside or outside of the handle. See figure 6A.
- B. Secure the cables with the cable ties. See figure 6B.
- C. Trim excess ends of cable ties.

➡ IMPORTANT

If your unit is equipped with both a side chute deflector and top discharge chute and grass bag, follow the instructions for top discharge mowers. After assembly is completed, it can then easily be converted to a side discharge mower.

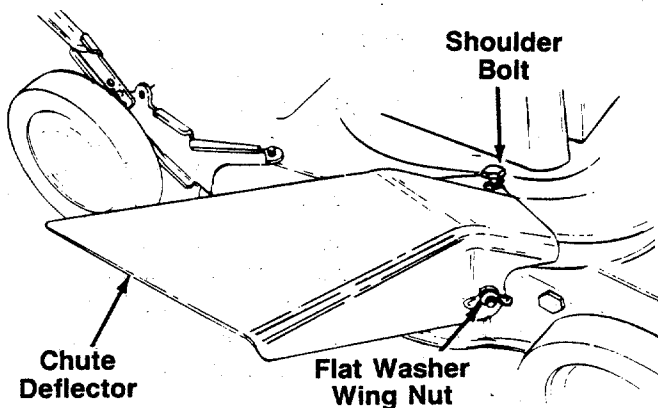


FIGURE 7.

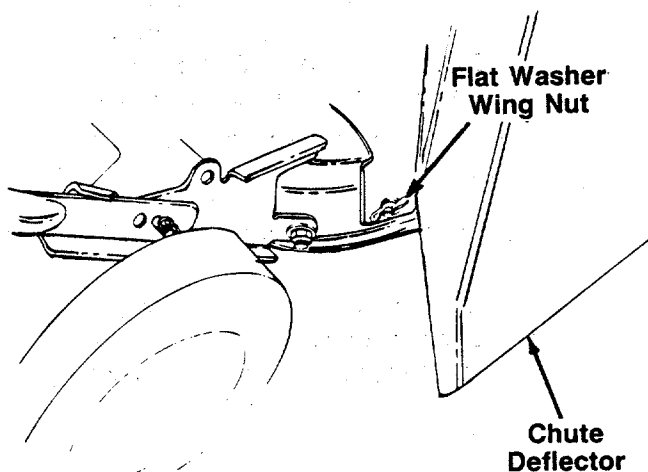


FIGURE 8.

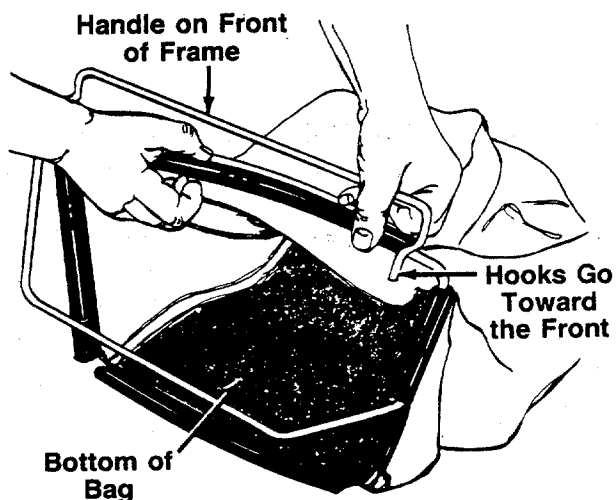


FIGURE 9.

SIDE DISCHARGE MOWERS ONLY (Model 104) (Hardware F)

This section is for side discharge models only. If your mower is a top discharge model (with grass bag), proceed to the next section.

1. Attach the chute deflector by first placing it over the rear bolt in the side of the deck, then over the front bolt and sliding it into position, with shoulder bolt on deck in notch on deflector.
2. Secure the front of the deflector to the bolt protruding from the deck with one flat washer and wing nut. See figure 7.
3. Secure the back of the deflector in the same manner. See figure 8.



WARNING

Never operate your unit without either the side chute deflector or entire top discharge chute and catcher panel assembly (optional equipment) in place.

➡ NOTE

A grass catcher kit is available which will convert your mower from side to top discharge. Order model number 190-067-000.

TOP DISCHARGE MOWERS ONLY (Model 114) Grass Catcher Assembly

1. Place bag over frame (black plastic side is the bottom of bag). Handle on frame goes to the top of bag. Hooks go toward the front. See figure 9.
2. Secure bag to frame by slipping plastic channels on bag over frame. See figure 9.

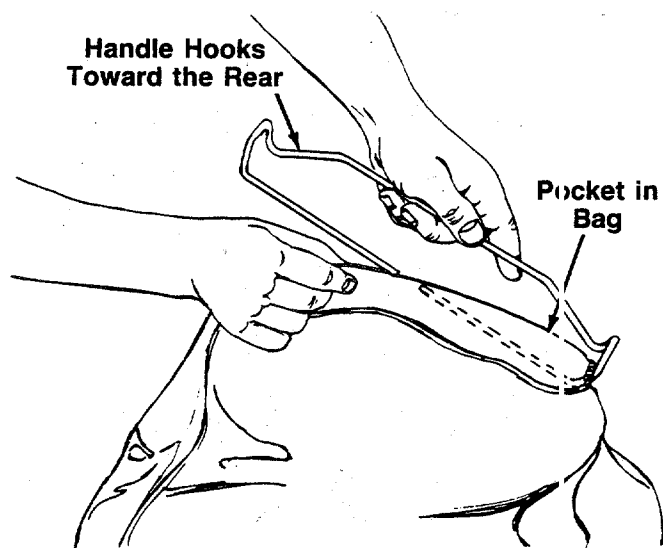


FIGURE 10.

3. Attach the rear handle to bag by inserting one side of handle into pocket on the rear of the bag. The handle should hook toward the rear of the bag as shown in figure 10. Thread all the material onto one side, then slide it over onto the other side. See figure 10.

To Attach Bag To Mower



WARNING

DO NOT operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.

1. Hold the chute door on the catcher panel open as shown in figure 11.
2. Slide the frame of the grass catcher down into the channels on the catcher panel. The hooks on the frame go over the catcher panel.
3. Hook the handle on the rear of the grass catcher over the lower handle of the mower. See figure 12.

To remove the grass catcher, unhook the rear handle and lift the grass catcher straight up.

To convert your mower back to a side discharge unit, remove only the grass bag and top discharge chute, and assemble the side chute deflector. It is not necessary to remove the catcher panel and brackets.

If your unit is not equipped with a side deflector, one is available. Order model number 190-068-000.



WARNING

Never operate your unit without either the side chute deflector or entire top discharge chute and catcher panel assembly in place.

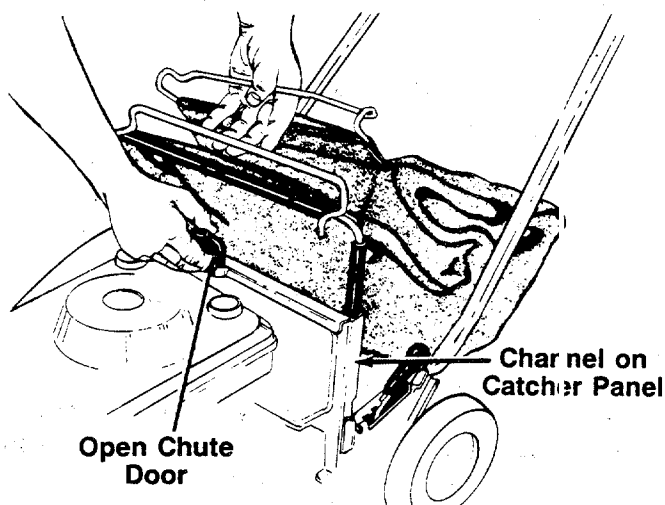


FIGURE 11.

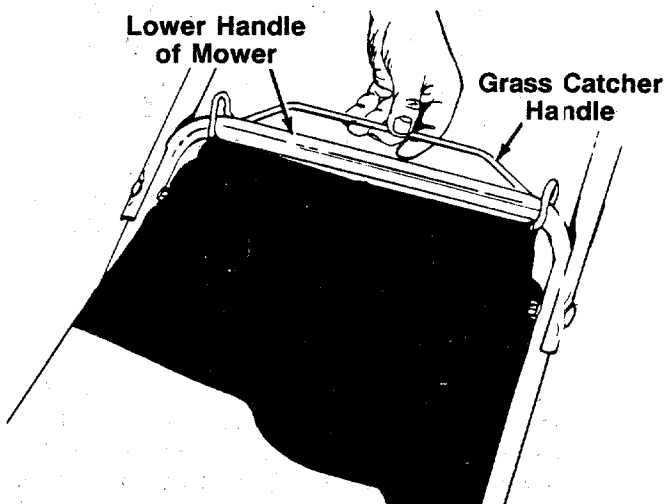


FIGURE 12.

FINAL ASSEMBLY OF MOWER

1. Attach hub caps (optional) to the wheels by lining up the four tabs on the hub caps with the four holes in the wheels. Push to lock in position.
2. Make certain all nuts and bolts are tightened securely.

CONTROLS

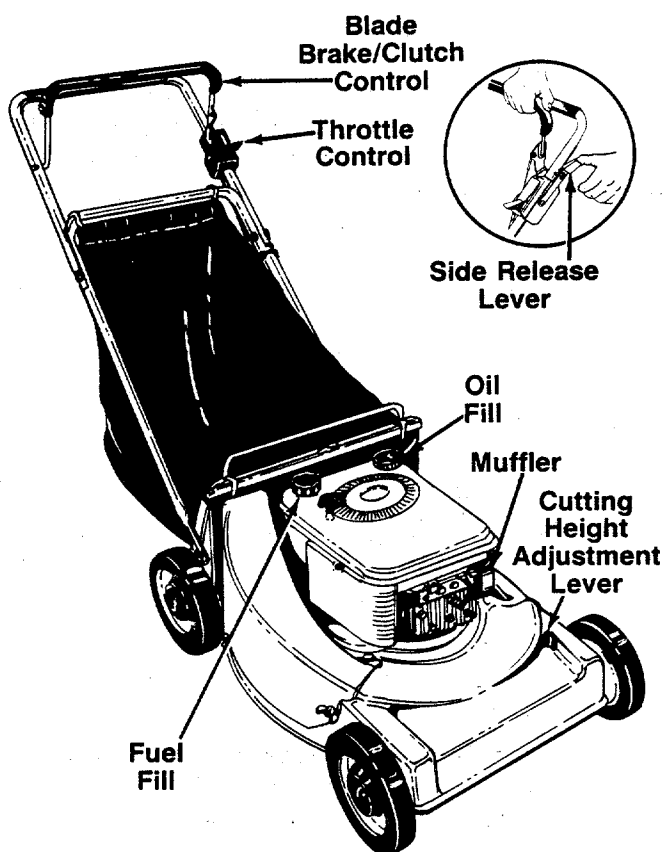


FIGURE 13.

THROTTLE CONTROL

The throttle is located on the left side of handle. It controls engine speed. See figure 13.

BLADE BRAKE/CLUTCH CONTROL

WARNING
THIS CONTROL MECHANISM IS A SAFETY DEVICE. NEVER ATTEMPT TO BYPASS ITS OPERATIONS.

The blade brake/clutch control is located on the upper handle of the mower. The blade brake/clutch handle engages and disengages the blade.

To engage the blade, pull the side release lever away from the unit. See figure 13. Pull the blade brake/clutch control handle against the upper handle. Release side lever.

Release the blade brake/clutch control handle to stop the blade from turning.

OPERATION



FIGURE 14.

Keep hands and feet away from the chute area on cutting deck. See figure 14.

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.

NOTE

Your unit has been shipped without oil; however, a small amount of oil may be present from the factory. Do not overfill.



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.

TO START ENGINE

1. Attach spark plug wire to spark plug.
2. The fuel shut-off valve is located beneath the fuel tank. On Model 114, an access hole is provided in the catcher panel. The fuel shut-off valve should be in the open position. See figure 15. Open fuel shut-off valve using a wrench if it is closed. See figure 16.

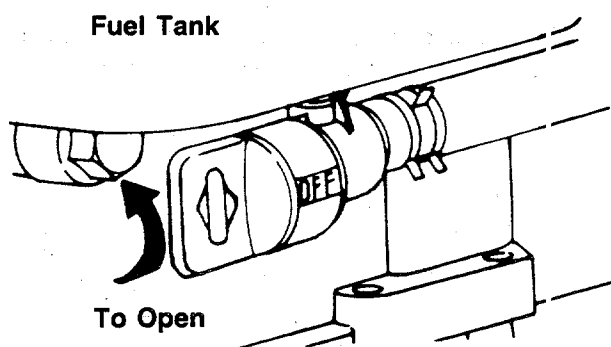


FIGURE 15.

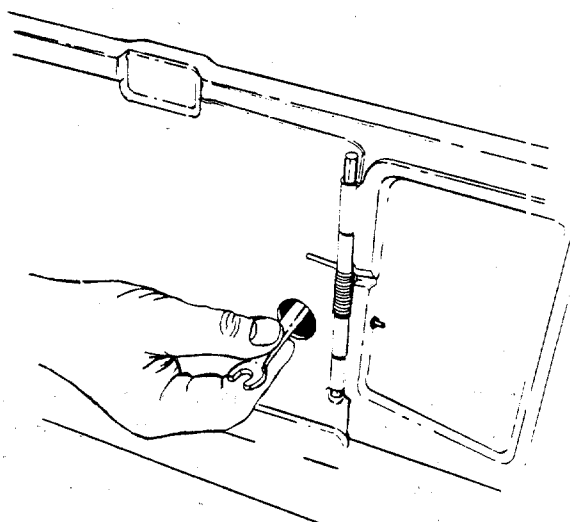


FIGURE 16.

3. Move throttle control lever to CHOKE position.

NOTE

A warm engine may not require choking.

4. With the blade brake/clutch handle released, crank engine by pulling recoil starter with a quick firm pull. Do not pull out so far that rope stops with a jerk as this will cause rope failure. Do not allow rope and handle to snap back into place.
5. After engine starts, move throttle control to desired engine speed.

TO STOP ENGINE

1. Move throttle control lever to STOP position.
2. Disconnect spark plug wire from spark plug and ground against the engine to prevent accidental starting while equipment is unattended.

NOTE

If any problems are encountered, refer to the Trouble Shooting Chart on page 21.

TO ENGAGE THE BLADE

1. Start engine as instructed on page 11. Allow the engine to warm up for **one minute** before attempting to engage the blade.
2. To engage the blade, pull the side release lever away from the unit. Pull the blade brake/clutch control handle down against the upper handle. Release the side lever. See figure 13.

NOTE

If a warm engine falters or stalls when attempting to engage the blade, refer to Carburetor Adjustment Section of this owner's manual.

3. Release the blade brake/clutch control handle to stop the blade from turning.

NOTE

Always release the blade brake/clutch control handle before stopping the engine. If the engine begins to stall, release the blade brake/clutch control handle immediately.

Should the engine stall with the blade brake/clutch control in the operating position (control handle **not** released), difficulty may be encountered in pulling the starter rope to restart the engine. Proceed as follows.

1. Disconnect the spark plug wire from the spark plug.
2. Move the throttle lever to STOP position.
3. Hold the blade brake/clutch control in the engaged position.
4. While holding the blade brake/clutch control handle in this position, pull the starter rope.
5. As the starter rope is being pulled, release the blade brake/clutch control handle.

The starter rope should now operate correctly. Reconnect the spark plug wire for normal operation.

USING YOUR ROTARY MOWER



DO NOT operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.

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.

Operate a new engine at intermediate speeds and light load for the first few hours as you would a new automotive engine.

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.

When using the side discharge mower, the best mowing pattern is one that allows the clippings to discharge towards the uncut part of the lawn. This permits recutting of the clippings to further pulverize them. When cutting high weeds, discharge towards cut portion, then recut at right angles to first direction.

For 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.

➡ IMPORTANT

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.

Striking a solid object can cause damage to the blade brake/clutch or to the engine crankshaft. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

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

The height adjustment handle is located on the left side of the deck. The handle may be placed in one of nine cutting height positions. Push the handle to the left and then either forward to lower the cutting height or backward to raise the cutting height. See figure 17.

For rough or uneven lawns, move the height adjustment handle to a position which will give a higher cutting height.

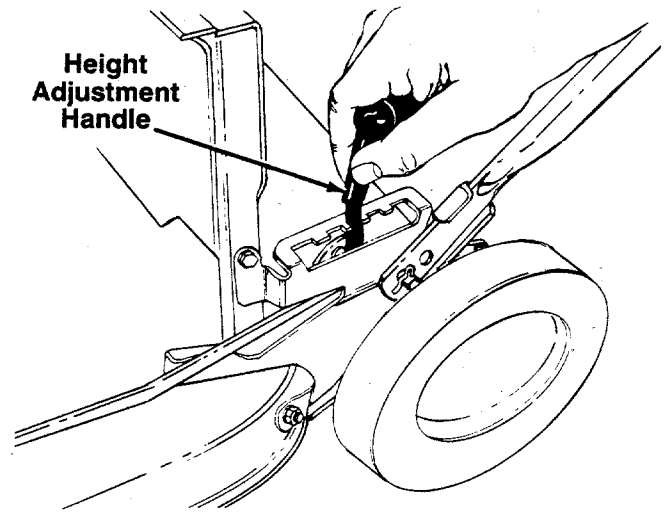


FIGURE 17.

THROTTLE

The throttle control wire assembly can be adjusted if necessary. Loosen the screw on the cable clamp closest to the control lever on engine. Adjust as instructed in step 5 of "Attaching the Throttle Control Cable" in Assembly Instructions.

CARBURETOR ADJUSTMENTS



WARNING

If any adjustments are made to the engine while the engine is running (e.g. carburetor), disengage all clutches and blades. 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. Refer to the separate engine manual packed with your mower.

➡ NOTE

If a warm engine falters or stalls when attempting to engage the blade, the carburetor mixture should be adjusted 1/8 turn richer (counter-clockwise). See figure 18.

The carburetor should be adjusted with the air cleaner in place and the blade control handle in the blade disengaged position.

NOTE

A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean before adjusting carburetor. Refer to the separate engine manual.

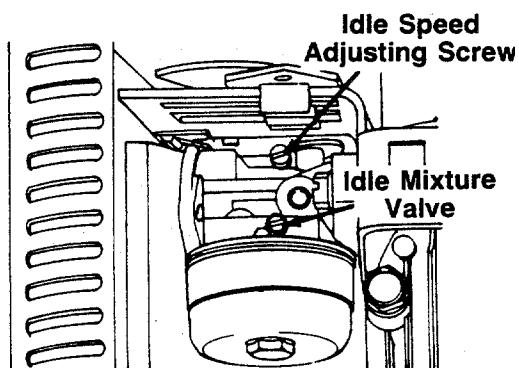


FIGURE 18.

LUBRICATION



WARNING

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

Blade Brake/Clutch—Lubricate the pivot points on the blade brake/clutch handle and the cable at least once a season with light oil. The control must operate freely in both directions.

Discharge Chute Door Mechanism—The torsion spring and pivot point should be lubricated periodically with light oil to prevent any rust or binding. Door must work freely.

Wheels—Mower may be provided with ball bearing wheels. Lubricate at least once a season with light oil. Also, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil. 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.

Throttle—Periodically lubricate throttle control lever and throttle wire assembly with a few drops of light oil for ease of operation.

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 21 of this manual for trouble shooting information.

CUTTING BLADE

To remove the cutting blade for sharpening or replacement, remove the two hex nuts and lock washers which hold the blade to the blade brake/clutch. Protect hands by using heavy gloves or a rag to grasp the cutting blade. See figure 19.

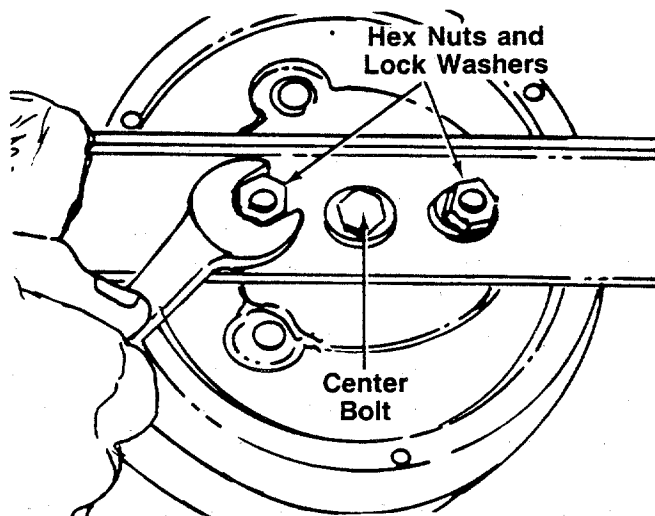


FIGURE 19.

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.

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

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

Make certain that the center bolt which secures the blade brake/clutch and the two hex nuts which secure the blade are tightened to between 350 inch pounds (minimum) and 600 inch pounds (maximum).

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

DECK

The underside of mower deck should be cleaned after each period of use as grass clippings, leaves, dirt and other matter will accumulate. This accumulation of grass clippings, etc., is undesirable as 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 forward or on its side and scraping clean with a suitable tool or by washing with a stream of water from a garden hose.

NOTE

Do not direct the stream of water at a hot engine as damage to the engine may result.

ENGINE

Refer to separate engine manual for all 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.

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.

BLADE BRAKE/CLUTCH

This unit is equipped with a blade brake/clutch. If for some reason the blade brake/clutch becomes inoperative, it is suggested that all repair work on the blade brake/clutch should be performed by an authorized service dealer. The unit should be inspected by an authorized service dealer if any of the following conditions are noticed.

1. Frayed clutch control cable.
2. Leaking oil seal (oil collection on the floor during mower storage).
3. Extensive vibration of the unit.

Blade Brake/Clutch Removal

1. Disconnect the spark plug wire and ground it against the engine block.
2. Empty fuel tank and drain oil from crankcase.
3. Remove the cable ties which secure control cables to the handle.
4. Disconnect the blade brake/clutch cable from the clutch control handle by removing the push cap, using a pair of pliers.

NOTE

A new push cap is needed for re-assembly.

5. Remove two truss machine screws on the inside of the control housing as shown in figure 20.
6. Loosen the truss machine screw on the outside of the control housing until the two halves of control housing can be separated enough for the control cable to be freed. Slide the blade brake/clutch cable out of the control housing.
7. Retighten the truss machine screws on the control housing.

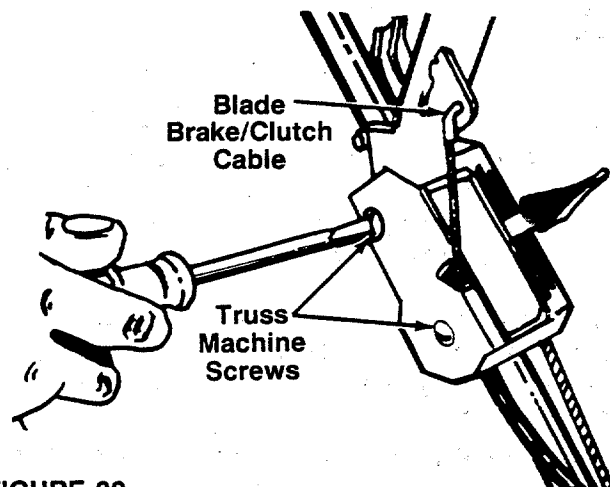


FIGURE 20.

8. Disconnect the throttle control cable from the engine by loosening screw on engine and disconnecting the "Z" fitting. Refer to figure 5.
9. Tip the mower on its side. Remove the blade by removing two hex nuts and lock washers. Refer to figure 19.

NOTE

When reassembling, tighten hex nuts to between 350 and 600 in. lbs.

10. Remove the center bolt as follows.
 - a. Insert a screwdriver into the slot provided in the blade brake/clutch housing where the control cable enters housing. See figure 21.

- b. Place a 9/16" wrench on the center bolt. Turn the wrench slowly until the screwdriver catches in a groove provided inside the clutch. The screwdriver will now keep the clutch from turning, and the center bolt and two belleville washers may be removed.

➡ IMPORTANT

Upon reassembly, be certain to tighten center bolt to between 350 and 600 in. lbs.

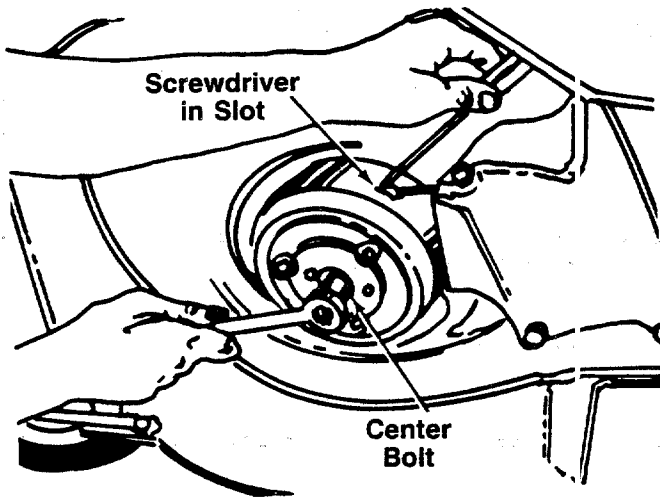


FIGURE 21.

11. Support the engine with one hand. Remove the three self-tapping screws which secure the deck and blade brake/clutch to the engine. A 1/2" socket wrench is required. See figure 22.

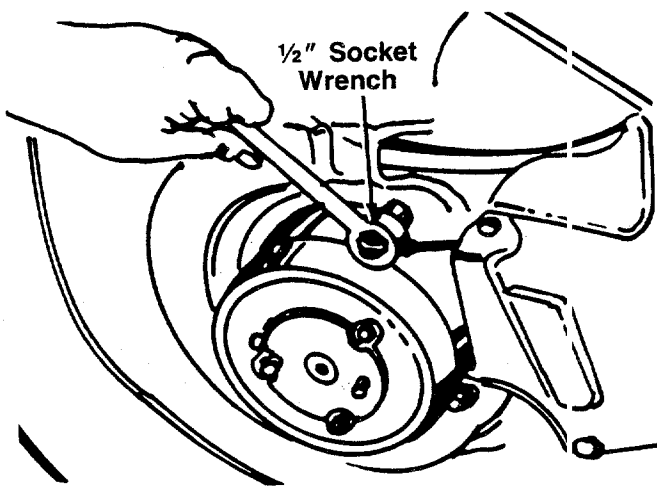


FIGURE 22.

12. Slide the blade brake/clutch cable through the hole in the deck as you lift off the engine and blade brake/clutch. Be careful not to kink control cable.
13. Remove blade brake/clutch from engine crankshaft.

Blade Brake/Clutch Installation

1. Place the new blade brake/clutch on engine crankshaft. Line up holes on blade brake/clutch with mounting holes on engine.
2. Place the two belleville washers onto crankshaft. Cupped side of washers must be against the blade brake/clutch. Secure with hex bolt finger tight only.
3. Place cable through engine mounting hole on deck.
4. Reverse steps 1 through 12 of preceding section for reassembly.

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.

➡ NOTE

When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rustproof the equipment. Using a light oil or silicone, coat the equipment, especially the bearings and cables.

→ NOTE

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

GRASS CATCHER Model 067 is available as replacement equipment for the mower Model 104 shown in this manual.



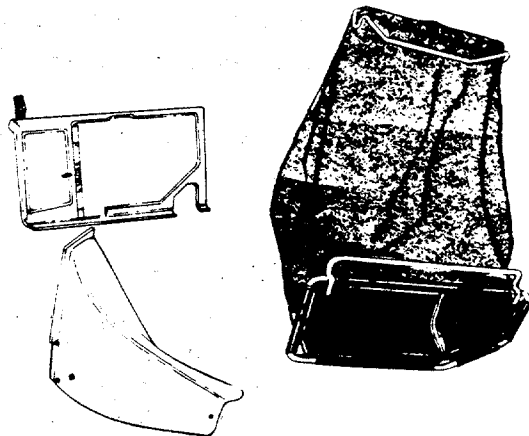
WARNING

1. DO NOT operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.
2. DO NOT operate the mower without the protective shield on the rear of the deck in place.

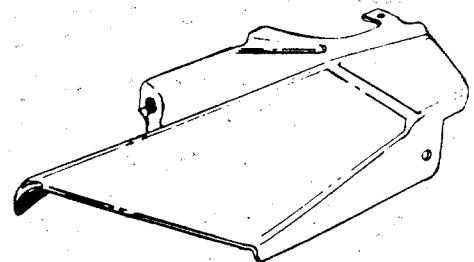
→ NOTE

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.

For replacement bags, use only factory authorized replacement bag No. 764-0212.



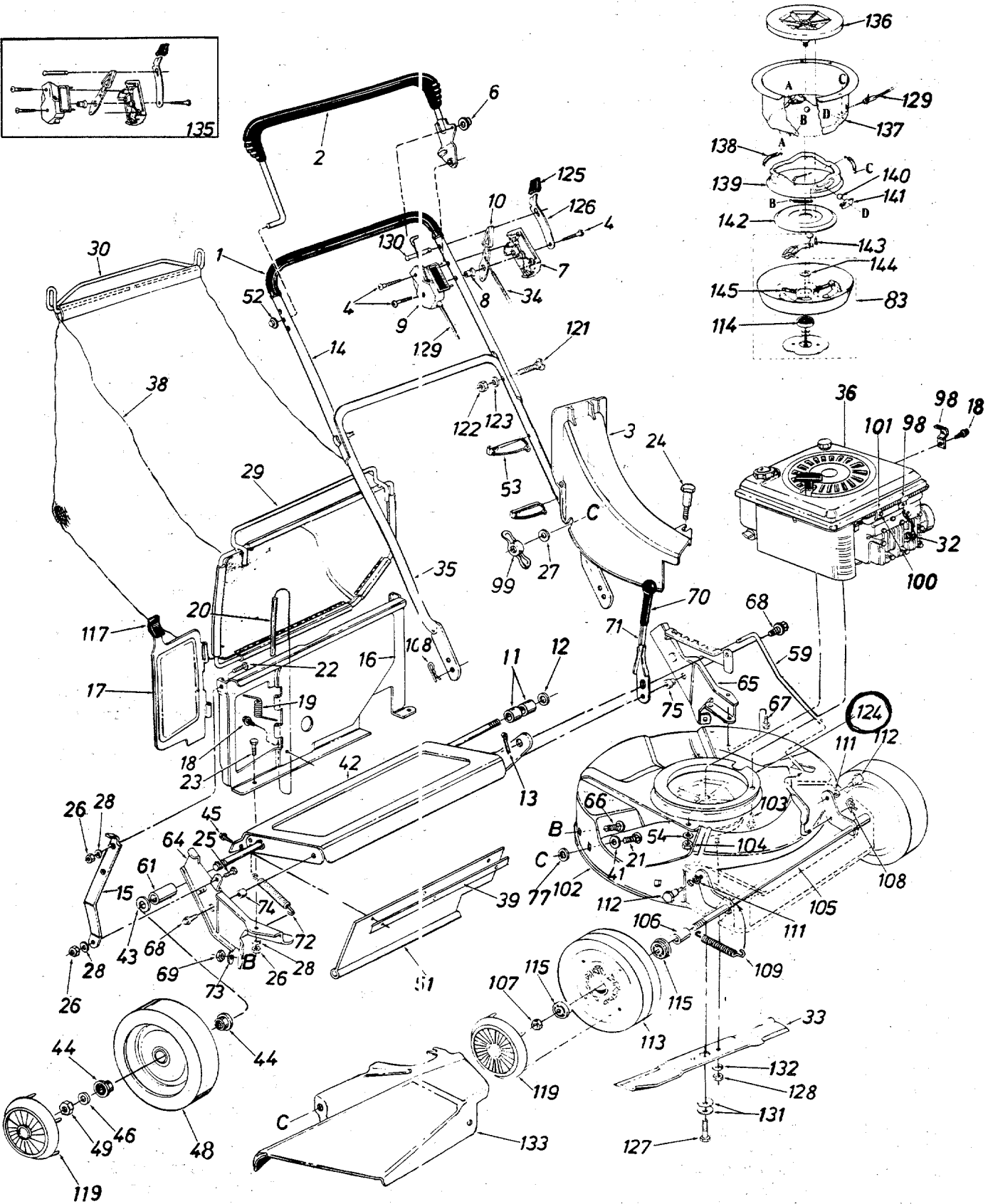
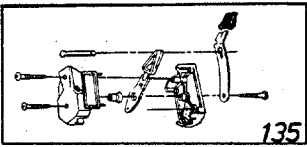
Model 067



Model 068

For units not equipped with the above, top discharge grass bag assembly Model 190-067-000 and side chute deflector Model 190-068-000 are available as optional equipment.

Models 104 and 114



Models 104 and 114

PARTS LIST FOR MODELS 104 AND 114 21" ROTARY MOWERS

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	718-0145		Grip		48	734-1026		Rear Wheel Ass'y.—Comp.	
2	731-0609		Control Handle Ass'y.—L.H.					8 x 1.75	
3	731-0733		Top Discharge Chute		49	712-0200		Hex L-Nut 1/2-20 Thd.	
			Ass'y.†		51	731-0672	0671	Rear Flap	
4	710-0796		Truss Mach. Scr. #12 x		52	726-0135		Push Cap	
			1.50" Lg.		53	726-0240		Cable Tie	
6	726-0245		Push Cap	N	54	736-0329		L-Wash 1/4" I.D.	
7	731-0817		Control Panel Half		59	747-0510		Height Adj. Rod	
8	731-0524		Control Disc Pin		61	748-0190		Spacer .513" I.D. x .703"	
9	731-0816		Clutch Panel Half					O.D. x .690" Lg.	
10	731-0528		Throttle Control Lever		64	16136		R.H. Handle Wheel Brkt.	
11	711-0500		Spacer .526" I.D. x .690"					Ass'y.	
			O.D. x .640" Lg.		65	16137		L.H. Handle Wheel Brkt.	
12	736-0160		FI-Wash. .531" I.D. x .930"					Ass'y.	
			O.D.		66	710-0260		Carriage Bolt 5/16-18 x .62"*	
13	714-0507		Cotter Pin 3/32" Dia.		67	710-0603		Hex Wash. Hd. B-Tap Scr.	
			x .75" Lg.*					5/16-18	
14	749-0437		Upper Handle—Chrome		68	710-0654		Hex Wash. Hd. TT-Tap Scr.	
15	16129		Panel Support Brkt.†					3/8-16	
16	16140		Top Catcher Panel†		69	712-0267		Hex Nut 5/16-18 Thd.*	
17	16145		Top Door†		70	720-0143		Grip	
18	710-0429		Hex "B" Tap Scr. #10 x		71	732-0473		Height Adj. Lever	
			.38" Lg.†		72	732-0481		Extension Spring .50" O.D.	
19	732-0483		Torsion Spring .20" I.D. x					x 3.80" Lg.	
			1.14" Lg.†		73	736-0242		Bell-Wash. .345" I.D. x .88"	
20	747-0514		Pivot Pin .187" Dia. x					O.D.	
			7.25" Lg.†		74	750-0526		Spacer .385" I.D. x .502"	
21	710-0134		Carriage Bolt 1/4-20 x .62"*					O.D. x .270" Lg.	
22	710-0286		Truss Mach. Scr. 1/4-20 x		75	750-0624		Shld. Spacer .500" Dia. x	
			.5" Lg.†					.100	
23	710-0289		Hex Bolt 1/4-20 x .50" Lg.*†		77	726-0233		Bolt Retainer 1/4 x .50" O.D.	
24	738-0704		Shld. Bolt .312" Dia. x .18"		83	14300		Clutch Blade Housing Ass'y.	
			Lg. Special		98	12894		Throttle Control Cable Clip	
25	710-0258		Truss Mach. Scr. 1/4-20 x		99	712-0109		Wing Nut	
			.62" Lg.†		100	710-0436		Hex B-Tap Scr. #10 x .62"	
26	712-0287		Hex Nut 1/4-20 Thd.*†					Lg.	
27	736-0270		Bell-Wash. 1/4" I.D.		101	751-0442		Casing Clamp	
28	736-0329		L-Wash. 1/4" I.D.*†		102	16126		Top Discharge Deck Ass'y.	
29	747-0494		Front Grass Catcher Frame†		103	710-0654		Hex Wash Hd. TT-Tap Scr.	
30	747-0495		Grass Catcher Handle†					3/8-16	
32	735-0639		Spark Plug Insulator		104	712-0185		Speed Nut 1/4-20 U-Type	
33	742-0290		21" Blade		105	10662		Front Axle Ass'y.	
34	746-0633		Throttle Control Wire 58"		106	711-0313		Sleeve .526" I.D. x .690"	
35	749-0505		Lower Handle—Chrome					O.D. x .880" Lg.	
36	—		Engine		107	712-0200		Hex L-Nut 1/2-20 Thd.	
38	764-0212		21" Top Discharge Grass		108	714-0104		Intern. Cotter Pin 5/16" Dia.	
			Bag†		109	732-0482		Extension Spring .50" O.D.	
39	14835		Retaining Strip					x 3.20" Lg.	
41	736-0204		FI-Wash. .344" I.D. x .62"		111	736-0221		Intern. L-Wash. 3/8 x .56"	
			O.D.					O.D.	
42	16131		Rear Axle Ass'y.		112	738-0615		Shld. Bolt .623" Dia. x .425	
43	736-0160		FI-Wash. .531" I.D. x .930"		113	734-1264		Front-Wheel Ass'y. Comp.	
			O.D.					7 x 1.75	
44	741-0180		Flange Ball Bearing 1/2" I.D.		114	741-0124		Ball Brg. .669" I.D. x 1.574"	
45	710-0776		Hex AB-Tap Scr. 1/4 x .62"		115	741-0180		Flange Ball Bearing 1/2" I.D.	
46	736-0160		FI-Wash. .531" I.D. x .930"		116	714-0104		Intern. Cotter Pin 5/16" Dia.	
			O.D.		117	720-0208		Door Grip x 2.5†	
47	712-0296		Hex Patch L-Nut 3/8-24 Thd.		119	**		Hub Cap—Plastic	

Models 104 and 114

PARTS LIST FOR MODELS 104 AND 114 21" ROTARY MOWERS (CONTINUED)

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
121	710-0671		Curved Carr. Bolt 5/16-18 x 1.38" Lg.		133	16559		Side Chute Deflector (104 Only)	
122	712-0267		Hex Nut 5/16-18 Thd.*		135	753-0431		Kit—Control Housing Comp.	
123	736-0119		L-Wash. 5/16" I.D.*		136	719-0256		Fan Adapter	
124	717-0485		Blade Brake Clutch Comp.		137	14307		Clutch Housing	
125	720-0190		Spring Lever Knob		138	732-0397		Extension Spring .35" O.D. x 1.75" Lg.	
126	732-0401		Lockout Spring		139	14305		Brake Cup Cone	
127	710-0818		Hex Cent. L-Bolt 3/8-24 x 2.00" (Grade 8)		140	741-0326		Steel Ball .500" Dia.	
128	712-0328		Hex Nut 3/8-24 Thd. (Grade 8)		141	731-0520		Ball Block	
129	746-0400A		BBC Clutch Cable—46"		142	14304		Clutching Cone	
130	731-0607		Lock Pin .314" Dia. x 1.75"		143	710-0875		Hex Tap L-Scr. 1/4-20 x .75"	
131	736-0105		Bell-Wash. .400" I.D. x .88" O.D.		144	736-0333		FI-Wash. .690" I.D. x 1.060" O.D.	
132	736-0169		L-Wash. 3/8" I.D.*		145	732-0396		Compression Spring .35" O.D. x 2.00" Lg.	

†Top Discharge Model 114 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.

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."

Find It Fast
In The
Yellow Pages



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.

**Hub Caps Available

Color	Part No.
Red	731-0124
Orange	731-0254
Black	731-0354
Gray	731-0355

Trouble Shooting Chart

Problem	Cause	Remedy
1 Engine fails to start	A Check fuel tank for gas B Fuel shut-off valve closed C Spark plug lead wire disconnected D Throttle control lever not in the starting position E Faulty spark plug F Carburetor improperly adjusted, engine flooded G Old stale gasoline	A Fill tank if empty. B Open fuel shut-off valve. C Connect lead wire. D Move throttle lever to start position. E Clean, adjust gap or replace. F Remove spark plug, dry the plug, crank engine with plug removed, and throttle in off position. Replace spark plug and lead wire and resume starting procedures. G Drain and refill with fresh gasoline.
2 Hard starting or loss of power	A Spark plug wire loose B Carburetor improperly adjusted C Dirty air cleaner	A Connect and tighten spark plug wire. B Adjust carburetor. See separate engine manual. C Clean air cleaner as described in separate engine manual.
3 Operation erratic	A Dirt in gas tank B Dirty air cleaner C Water in fuel supply D Vent in gas cap plugged E Carburetor improperly adjusted	A Remove the dirt and fill tank with fresh gas. B Clean air cleaner as described in separate engine manual. C Drain contaminated fuel and fill tank with fresh gas. D Clear vent or replace gas cap. E Adjust carburetor. See separate engine manual.
4 Occasional skip (hesitates) at high speed	A Carburetor idle speed too slow B Spark plug gap too close C Carburetor idle mixture adjustment improperly set	A Adjust carburetor. See separate engine manual. B Adjust to .030". C Adjust carburetor. See separate engine manual.
5 Idles poorly	A Spark plug fouled, faulty, or gap too wide B Carburetor improperly adjusted C Dirty air cleaner	A Reset gap to .030" or replace spark plug. B Adjust carburetor. See separate engine manual. C Clean air cleaner as described in separate engine manual.
6 Engine overheats	A Carburetor not adjusted properly B Air flow restricted C Engine oil level low	A Adjust carburetor. See separate engine manual. B Remove blower housing and clean as described in separate engine manual. C Fill crankcase with the proper oil.
7 Excessive vibration	A Cutting blade loose or unbalanced B Bent blade	A Tighten blade. Balance blade. B Replace blade.

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

PARTS INFORMATION

POWER EQUIPMENT PARTS AND SERVICE

Parts and service are available through the authorized service firms listed below. All orders should specify the model number of your unit, part numbers, description of parts and the quantity of each part required.

NOTE: If any parts are found to be missing or defective upon assembly of this unit, write to advise the factory so that immediate replacement can be made.

ALABAMA	BIRMINGHAM
Auto Electric & Carburetor Co.	2625 4th Ave. S. 35233
ARKANSAS	NORTH LITTLE ROCK
Sutton's Lawn Mower Shop.	5301 Roundtop Drive Box 368, Rt. 4 72117
CALIFORNIA	PORTERVILLE
Billious	75 North D Street 93257
COLORADO	DENVER
Spitzer Industrial Products Co.	6601 N. Washington St. 83229
FLORIDA	JACKSONVILLE
Radco Distributors	4909 Victor St. Box 5459 32207
	HIALEAH
Small Eng. Dist.	7995 W. 26th Court 33016
GEORGIA	EAST POINT
East Point Cycle & Key Inc.	2834 Church St. 30344
ILLINOIS	LYONS
Keen Edge Co.	8615 Ogden Ave. 63534
INDIANA	ELKHART
Parts & Sales Inc.	2101 Industrial Pkwy. 43516
IOWA	DUBUQUE
Power Lawn & Garden Equip.	2551 J.F. Kennedy 52001
LOUISIANA	NEW ORLEANS
Suhren Engine Co.	8330 Earhart Blvd. 73118
MARYLAND	TAKOMA PARK
Center Supply Co.	6867 New Hampshire Ave. 23912
MASSACHUSETTS	SPRINGFIELD
Morton B. Collins Co.	300 Birnie Ave. 01107
MICHIGAN	LANSING
Lorenz Service Co.	2500 S. Pennsylvania 43910
	MOUNT CLEMENS
Power Equipment Dist.	340 Hubbard 43043
MINNESOTA	HOPKINS
Hance Distributing Inc.	420 Excelsior Ave. W. 55343
MISSOURI	EARTH CITY
Oscar Wilson Engine & Parts	4159 Shoreline Dr. 63045
	KANSAS CITY
Automotive Equip. Service	3117 Holmes St. 64109
	ST. JOSEPH
Ross-Frazier Supply Co.	8th and Monterey 64503
	ST. LOUIS
Henzler, Inc.	2015 Lemay Ferry Rd. 63125
NEW JERSEY	ALLOWAY
Piersons	Canal St. 03001
NEW MEXICO	ALBUQUERQUE
Spitzer Eng. & Parts Co.	1023 Third Ave. N.W. 87103

BRIGGS AND STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing **Engines—Gasoline**, Briggs & Stratton or Tecumseh Lauson.

NEW YORK	CARTHAGE
Gamble Dist., Inc.	West End Ave. 13619
NORTH CAROLINA	GREENSBORO
Dixie Sales Company	335 N. Green 27402
OHIO	CARROLL
Stebe's Mid-State Mower Supply	Box 366, 71 High St. 43112
	CLEVELAND
Bleckrie, Inc.	7900 Lorain Ave. 44102
	WADSWORTH
National Central	687 Seville Rd. 44281
	YOUNGSTOWN
Burton Supply Co.	1301 Logan Ave. Box 929 44501
OREGON	PORTLAND
Kenton Supply Co.	8216 N. Denver Ave. 97217
PENNSYLVANIA	HARRISBURG
EECO Inc.	4021 N. 6th St. 17110
	WILLOW GROVE
Thompson Rubber Co.	850 Davisville Rd. 19090
	PITTSBURGH
Bluemont Co.	11125 Frankstown Rd. 15235
	PUNXSUTAWNEY
Frank Roberts & Sons	R.D. 2 15767
	SCRANTON
Scranton Auto Ignition Co.	1133-35 Wyoming Ave. 18509
TENNESSEE	KNOXVILLE
Ace Distributors	2103 Magnolia 37919
	MEMPHIS
American Sales & Service, Inc.	3035-43 Bellbrook 38116
TEXAS	DALLAS
Marr Brothers, Inc.	423 E. Jefferson 75203
	FORT WORTH
Woodson Sales Corp.	6733 Baker Blvd. Hwy. 10 76118
	SAN ANTONIO
Engine House Inc.	8610 Botts Lane P.O. Box 17867 78217
UTAH	SALT LAKE CITY
Powered Products	1661 N. Beck St. 84116
VIRGINIA	ASHLAND
RBI Corp.	101 Cedar Ridge Dr. 23005
WASHINGTON	SEATTLE
Equip. Northwest	1410 14th Ave. 98122
WISCONSIN	MILWAUKEE
Wisconsin Magneto Inc.	4727 N. Teutonia St. 53209

WARRANTY PARTS AND SERVICE POLICY

(0686)

The purpose of warranty is to protect the customer from defects in workmanship and materials, defects which are NOT detected at the time of manufacture. It does not provide for the unlimited and unrestricted replacement of parts. Use and maintenance are the responsibility of the customer. The manufacturer cannot assume responsibility for conditions over which it has not control. Simply put, if it's the manufacturer's fault, it's the manufacturer's responsibility; if it's the customer's fault, it's the customer's responsibility.

CLAIMS AGAINST THE MANUFACTURER'S WARRANTY INCLUDES:

1. Replacement of Missing Parts on new equipment.
2. Replacement of Defective Parts within the warranty period.
3. Repair of Defects within the warranty period.

All claims MUST be substantiated with the following information:

1. Model Number, Serial Number and/or Data Code of unit involved.
2. Date unit was purchased or first put into service.
3. Date of Failure.
4. Nature of Failure.