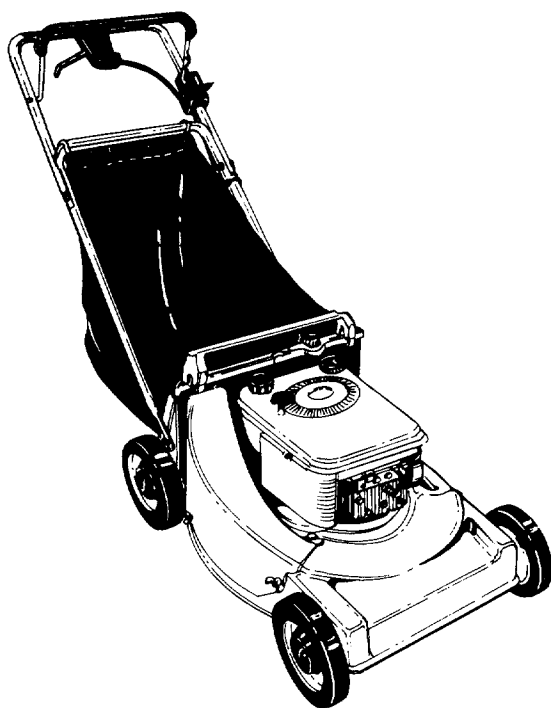


\$1.00

OWNER'S GUIDE

ASSEMBLY • OPERATION • MAINTENANCE • PARTS



21"
CONVERTIBLE
ROTARY
MOWERS

Model Numbers
120-176B000
120-178B000

Important: Read Safety Rules and Instructions Carefully

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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.

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 chute deflector 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. For replacement bags, use only factory authorized replacement bag.

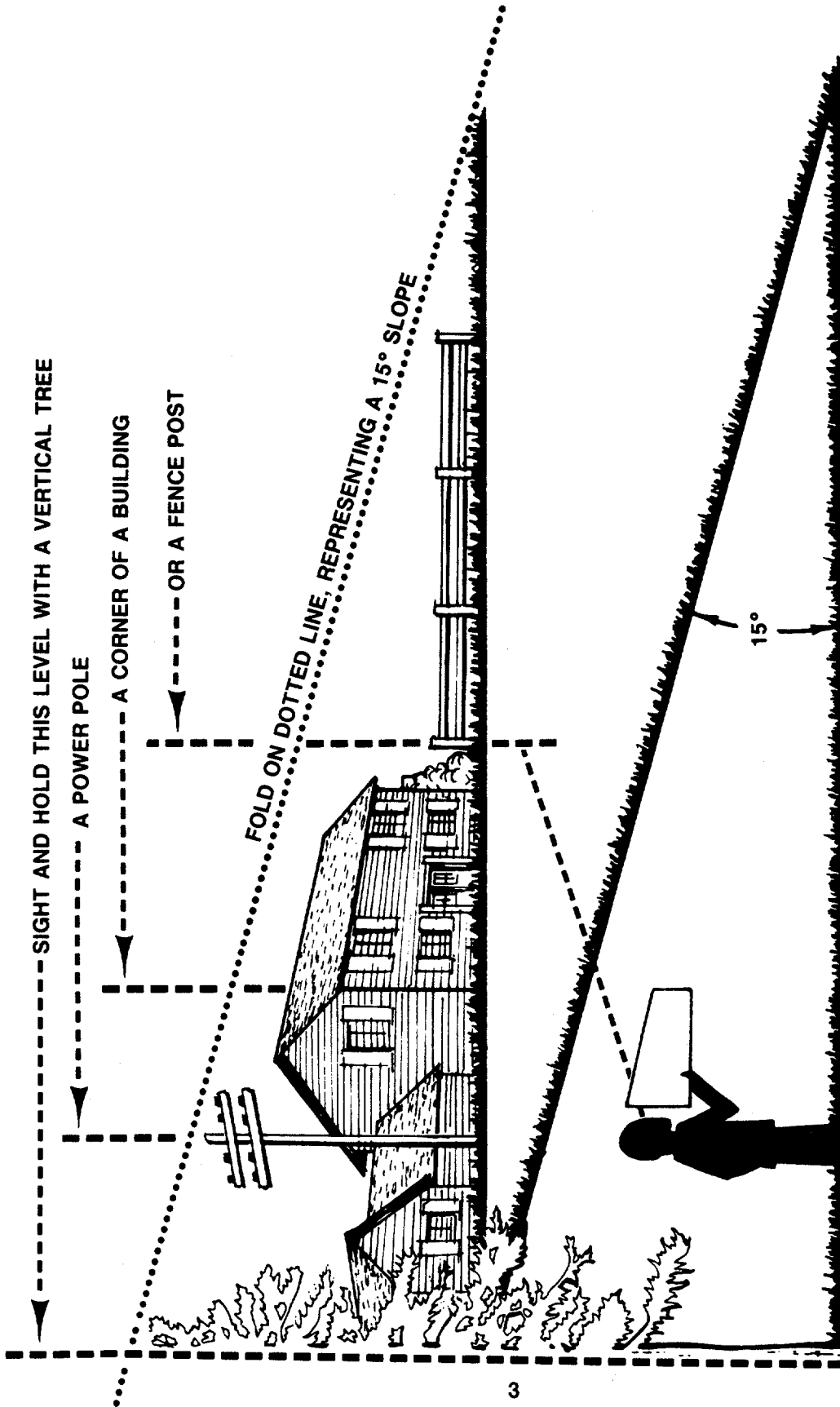
WARNING: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester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

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 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.

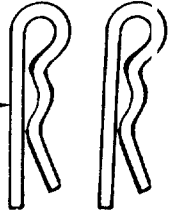
Operate RIDING mowers up and down slopes, never across the face of slopes.

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

CONTENTS OF HARDWARE PACK

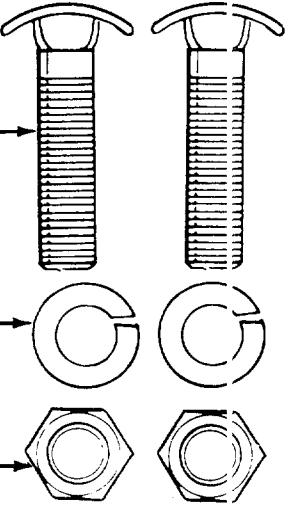
Remove this sheet from your owner's manual and lay the hardware on the illustration for identification purposes. After assembly, keep the Slope Gauge which is on the reverse side of this sheet for future use.
(Hardware pack may contain extra items which are not used on your unit.)

A ATTACHING THE LOWER HANDLE



Hairpin Clips

B ATTACHING THE UPPER HANDLE

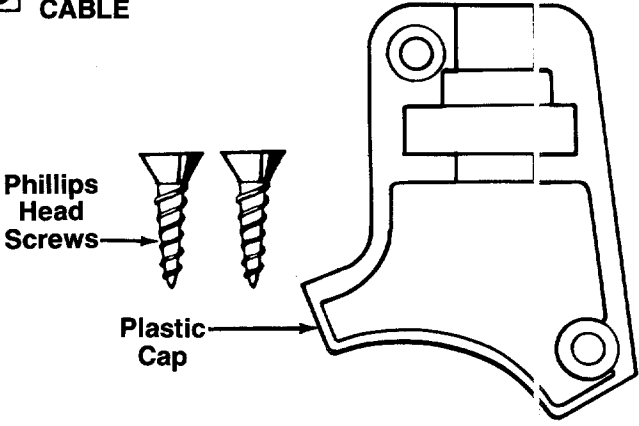


Curved Head Bolts

Split Washers
5/16" I.D.

Hex Nuts
5/16-18 Thread

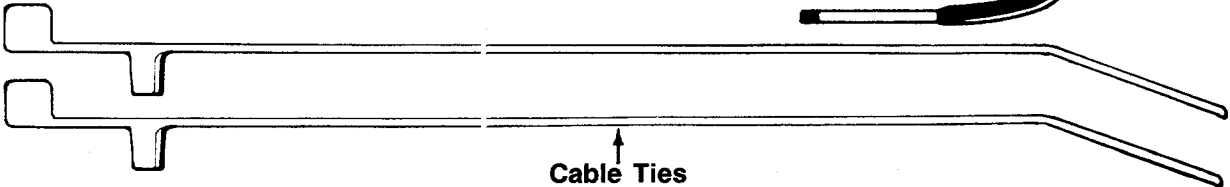
C ATTACHING THE DRIVE CLUTCH CONTROL CABLE



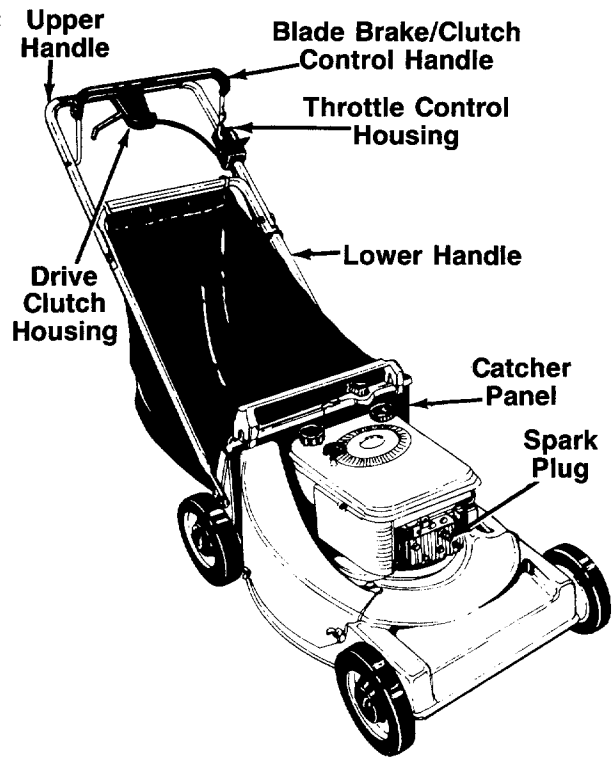
Phillips Head Screws

Plastic Cap

D SECURING THE CABLES




Cable Ties

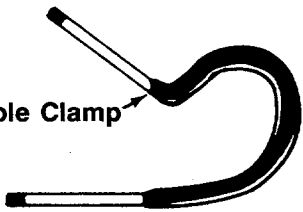


PARTS INFORMATION

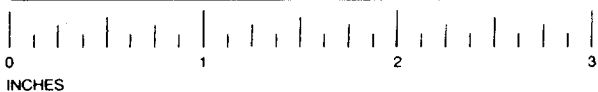
E ATTACHING THE BLADE BRAKE/CLUTCH CABLE



Push Cap



Cable Clamp



Cut Along This Line

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.



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.
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 without either the rear deflector or entire grass catcher assembly in place.



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.

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.

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.

Tools Required for Assembly

- (1) Pair of Pliers
 - (1) Phillips Head Screwdriver
 - (1) 1/2" Wrench*
 - (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.

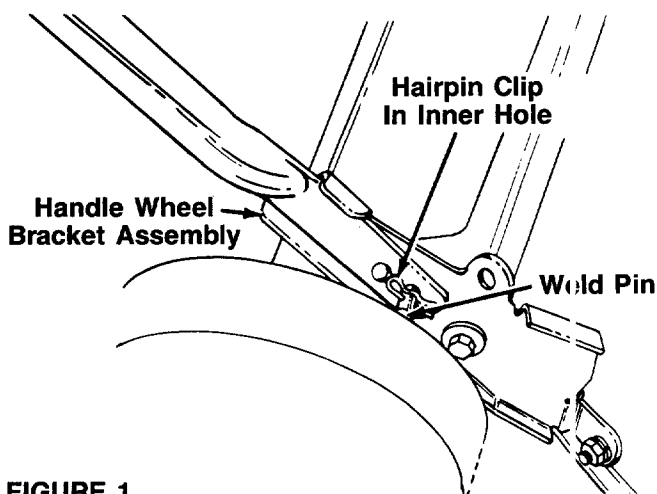


FIGURE 1.

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.
3. Using a pair of pliers, squeeze one leg of the lower handle against the handle wheel bracket assembly. Insert the hairpin clip into the **inner** hole on the weld pin. See figure 1. Repeat on other side.

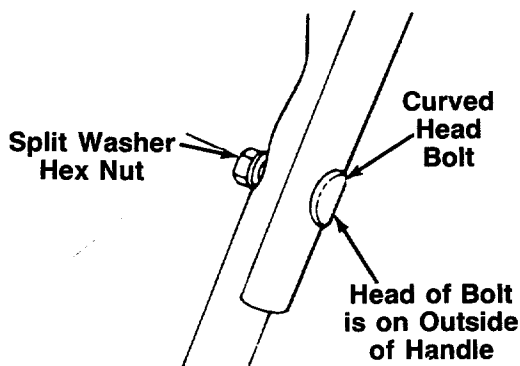


FIGURE 2.

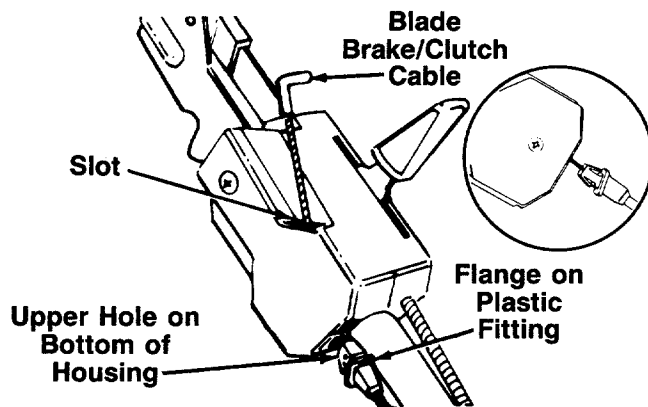


FIGURE 3.

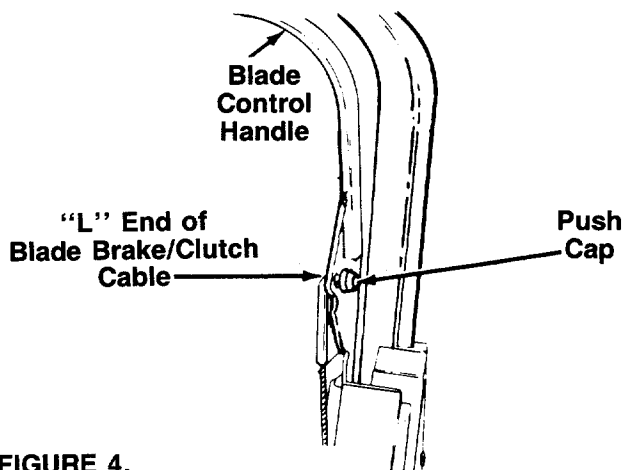


FIGURE 4.

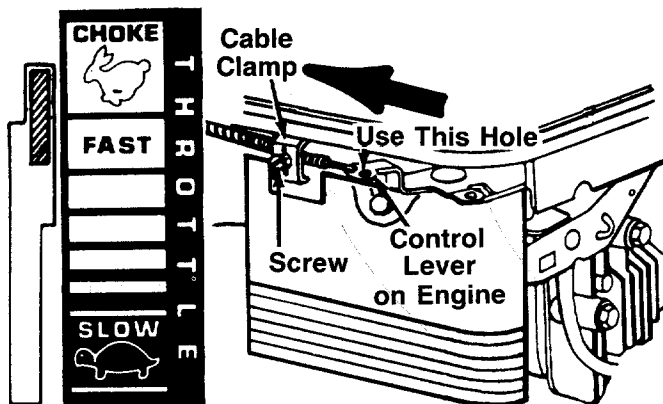


FIGURE 5.

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.

ATTACHING THE BLADE BRAKE/CLUTCH CABLE (Hardware E)

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 outside of the height adjustment handle and handle mounting bracket, and under the lower handle.
2. 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.
3. Push the plastic flange until it locks into the control housing.

←



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

4. 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.

←

ATTACHING THE THROTTLE CABLE

1. Push the throttle control lever on the handle all the way forward to CHOKE position. See figure 5.
2. The throttle control cable is attached to the upper handle. Route the throttle control cable under the lower handle and to the outside of the handle mounting bracket and height adjustment handle. Hook the "Z" end of the throttle control cable into the **inside** hole in the control lever on the engine as shown in figure 5.
3. Using a screwdriver, remove the screw and cable clamp shown in figure 5. Remove the cable clamp from the cable.
4. 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.

←

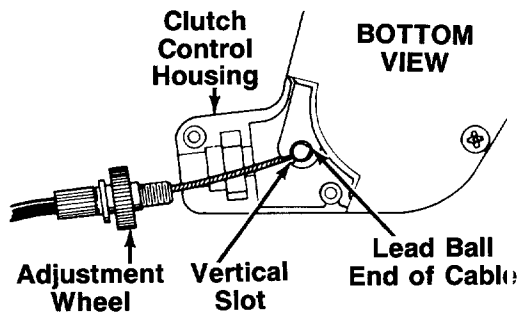


FIGURE 6.

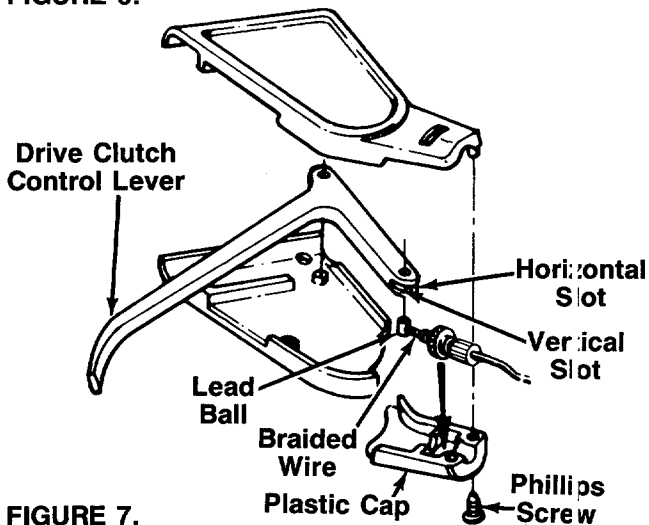


FIGURE 7.

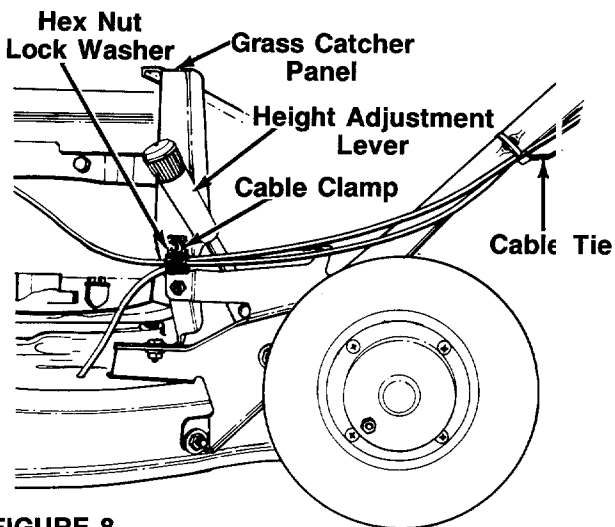


FIGURE 8.

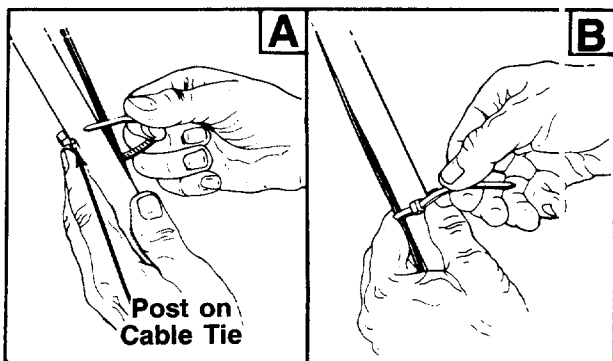


FIGURE 9.

ATTACHING THE DRIVE CLUTCH CONTROL CABLE (Hardware C)

The drive clutch control cable is attached to the deck. Route the cable under the lower handle. Attach the cable to the lever in the clutch control housing, located in the middle of the upper handle, as follows.

1. Place the lead ball end of the cable into the fitting provided in the end of the clutch control lever. Slip the braided wire into the vertical slot as shown in figure 6.

2. Slide the braided wire around in the horizontal slot. See figure 7.

3. Make certain the adjustment wheel is threaded onto the cable as far as possible as shown in figure 6. Place the adjustment wheel into the clutch control housing.

4. Secure the plastic cap to the clutch control housing using the two Phillips head screws. See figure 7.



WARNING: Drive clutch adjustment must be checked before the unit is operated, as described in the operation section.

SECURING THE CABLES (Hardware D)

Attach the brake and throttle control cables to the grass catcher panel as follows, using the cable clamp provided.

1. Open the clamp and slip the cables inside.
2. Remove the hex lock nut and flat washer on the side of the grass catcher panel. Attach the cable clamp as shown in figure 8. Secure with lock washer and hex nut.
3. Place the height adjustment lever in the lowest position.

4. Secure all the control cables to the left side of the handle with the cable ties as follows, taking the slack out of the cables so they do not contact the wheel.

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 on either the inside or outside of the handle. See figure 9A.

B. Secure the cables with the cable ties. See figure 9B.

C. Trim excess ends of cable ties.

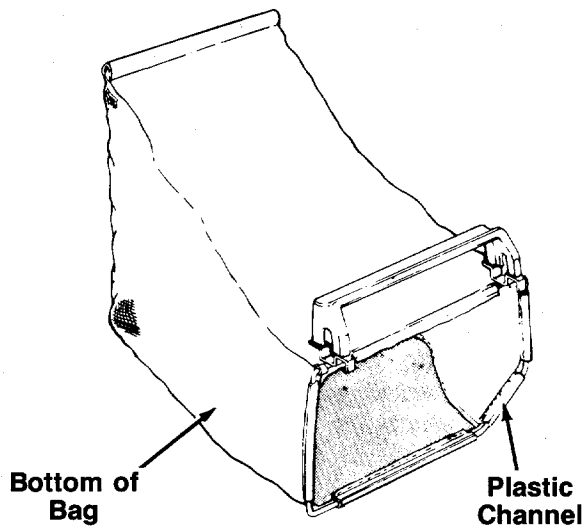


FIGURE 10.

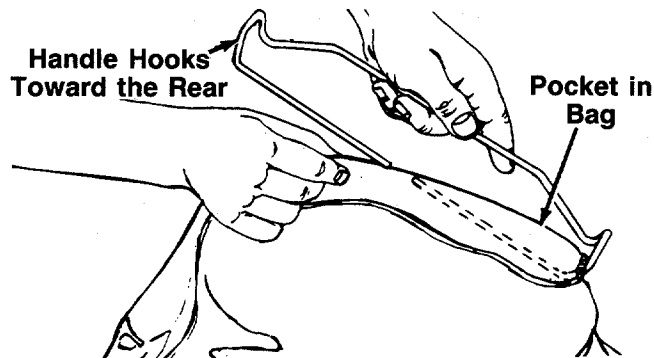


FIGURE 11.

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. Brackets hook toward the front. See figure 10.
2. Secure bag to frame by slipping plastic channels on bag over frame. See 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 11. Thread all the material onto one side, then slide it over onto the other side. See figure 11.

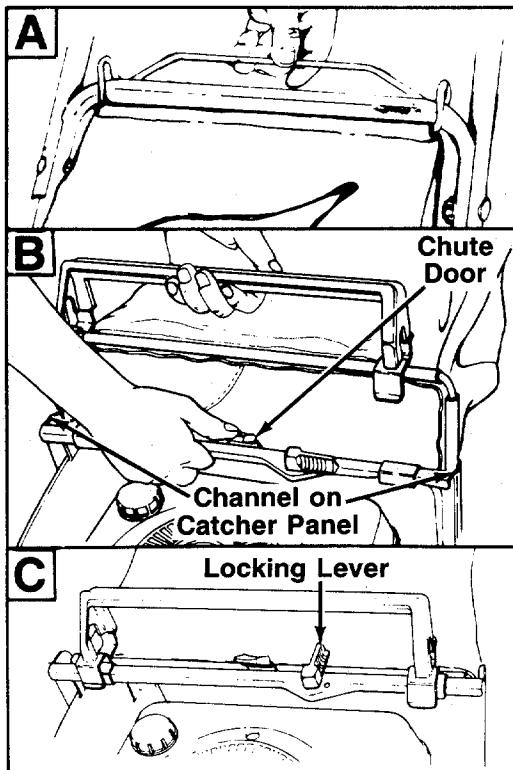


FIGURE 12.

TO ATTACH BAG TO MOWER



WARNING: DO NOT operate the mower unless the complete grass catcher or side chute deflector is properly mounted on the mower.

1. Hook the handle on the rear of the grass catcher over the lower handle of the mower. See figure 12A.
2. Hold the chute door on the catcher panel open as shown in figure 12B.
3. Slide the frame of the grass catcher down into the channels on the catcher panel. The top portion of the frame goes over the catcher panel.
4. Secure the grass catcher by turning the locking lever to the locked position as shown in figure 12C.

To remove the grass catcher, turn the locking lever to the unlocked position, unhook the rear handle and lift the grass catcher straight up.

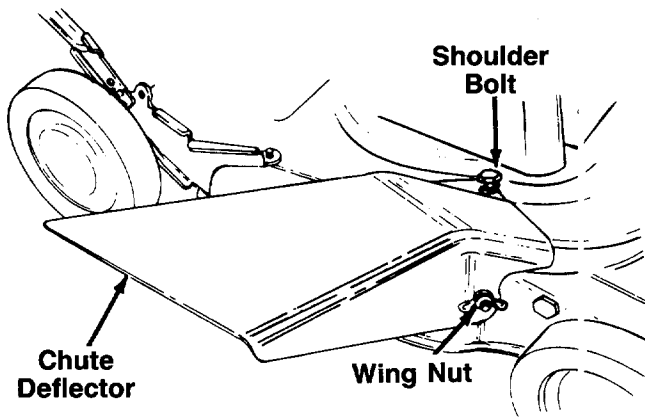


FIGURE 13.

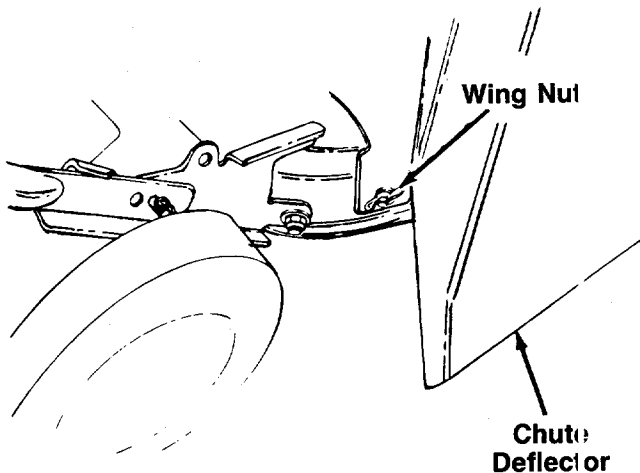


FIGURE 14.

TO CONVERT MOWER TO SIDE DISCHARGE

To convert your mower to a side discharge unit, proceed as follows.

1. Remove the rear discharge chute assembly by removing two wing nuts. Lift up on the two bottom corners of the discharge chute assembly, and slide it off the deck.
2. Attach the side chute deflector by first placing it over the rear bolt in the side of the deck. Then slide the notch in the top of the deflector around the shoulder bolt on top of the deck. Slide the notch in the side of the deflector around the front bolt in the side of the deck. See figure 13.

3. Secure the front of the chute deflector to the bolt on the side of the deck with one wing nut. See figure 13. Secure the back of the chute deflector in the same manner. See figure 14.

FINAL ASSEMBLY OF MOWER

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

CONTROLS

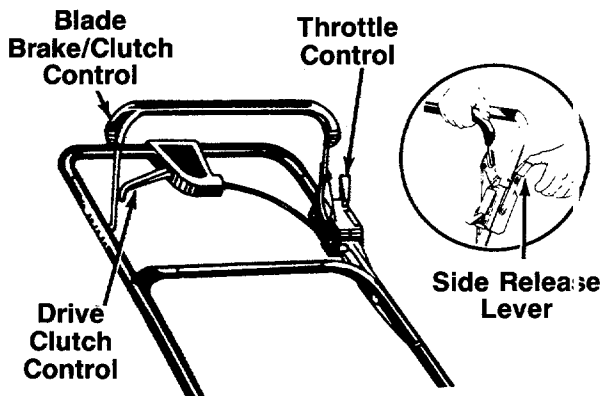


FIGURE 15.

THROTTLE CONTROL

The throttle is located on the left side of handle. It controls engine speed. See figure 15.

DRIVE CLUTCH CONTROL

Squeezing the drive clutch control engages the drive mechanism to the rear wheels. Releasing the clutch

control stops the rear wheels from driving. Release the drive clutch control to slow down when negotiating an obstacle, making a turn or stopping. See figure 15.

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 15. 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 16.

Keep hands and feet away from the chute area on cutting deck. See figure 16.

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 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. 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 freely.

If it does not and the rear wheels tend to lock up, the clutch may not be releasing completely. Do not start the engine until corrections have been made. Check the control cable for severe bend, kinks and binding, or grass build-up in the pulley groove. Correct and adjust as required. Refer to adjustment section for additional information.

2. Attach spark plug wire to spark plug. 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 17.

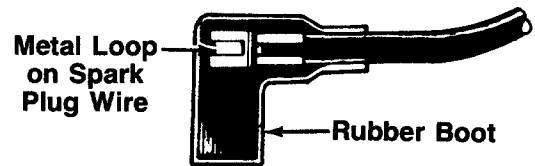


FIGURE 17.

3. The fuel shut-off valve is located beneath the fuel tank. The fuel shut-off valve should be in the open position. See figure 18. Open fuel shut-off valve if it is closed.

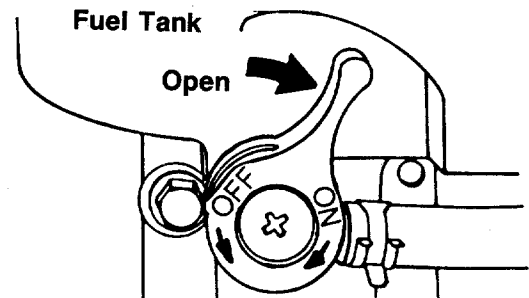


FIGURE 18.

TO START ENGINE



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 the throttle control lever to CHOKE position. (A warm engine may not require choking.)

2. With the blade brake/clutch control 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.
3. After engine starts, move the throttle control to desired engine speed.

NOTE: If any problems are encountered, refer to the *Trouble Shooting Guide* on page 15.

TO STOP ENGINE AND BLADE

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

TO ENGAGE THE BLADE

1. Start engine as instructed previously. 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 15.

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.

IMPORTANT: 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.



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

USING YOUR ROTARY 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.

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. Speed of the mower 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.



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.

ADJUSTMENTS



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

DRIVE CLUTCH CONTROL ADJUSTMENT

Use the adjustment wheel located on the underside of the clutch control housing to tighten the drive belt if mower does not self-propel with the drive clutch control engaged, or if drive belt is slipping (unit hesitates while engine maintains the same speed). See figure 19.

In addition, the adjustment wheel may also be used to determine the position in which the drive clutch control is engaged. If it is more comfortable to have the drive engaged with the lever further away from the handle, tighten the drive belt.

Make certain to retest the unit for neutral as instructed in the Operation Section. Move the adjustment wheel in the opposite direction to loosen the drive belt if necessary.

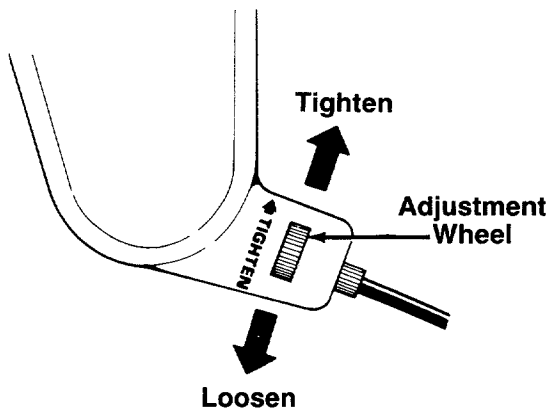


FIGURE 19.

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 20.

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

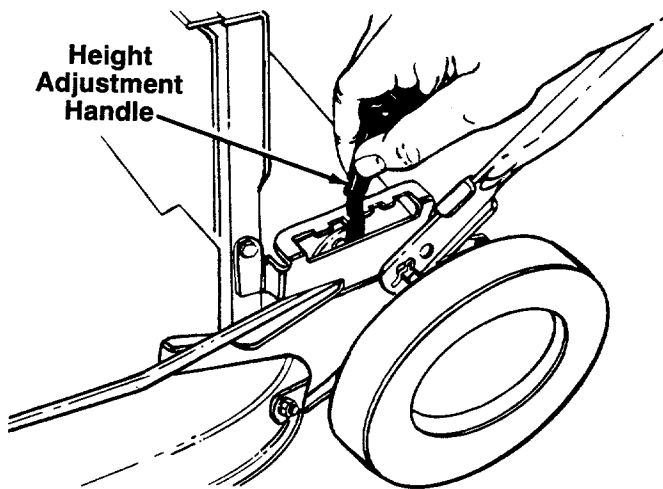


FIGURE 20.

THROTTLE

The throttle control wire assembly can be adjusted if necessary. Remove the screw and cable clamp shown in figure 5. Remove the cable from the clamp. Adjust as instructed in step 4 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 adjustment may be required to compensate for differences in fuel, temperature, altitude and load. Refer to the separate engine manual packed with your mower for carburetor adjustment information.

NOTE: If a warm engine falters or stalls when attempting to engage the blade, the carburetor mixture should be adjusted 1/8 turn richer (counterclockwise). See figure 21.

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

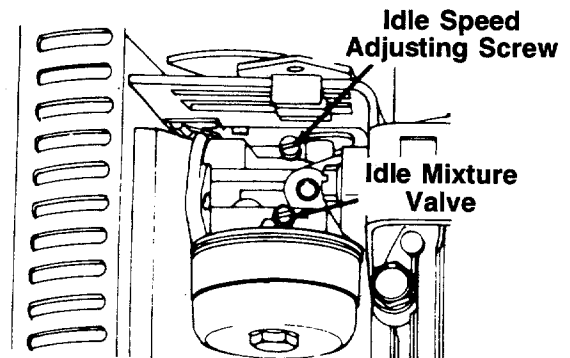


FIGURE 21.

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.

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 brake cable at least once a season with light oil. The blade control must operate freely in both directions.

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

Wheels—Lubricate the wheel bearings 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.

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

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 15 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 two hex nuts and lock washer which hold the blade to the blade brake/clutch. Remove the blade from the crankshaft.

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 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 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).

NOTE: Do not use water to clean the underside of the deck as damage to the blade brake/clutch could result.

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.

BLADE BRAKE/CLUTCH

This unit is equipped with a blade brake/clutch. If belt replacement is required or if for some reason the blade brake/clutch becomes inoperative, the repair work 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.

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 cables and all moving parts.

Trouble Shooting Guide

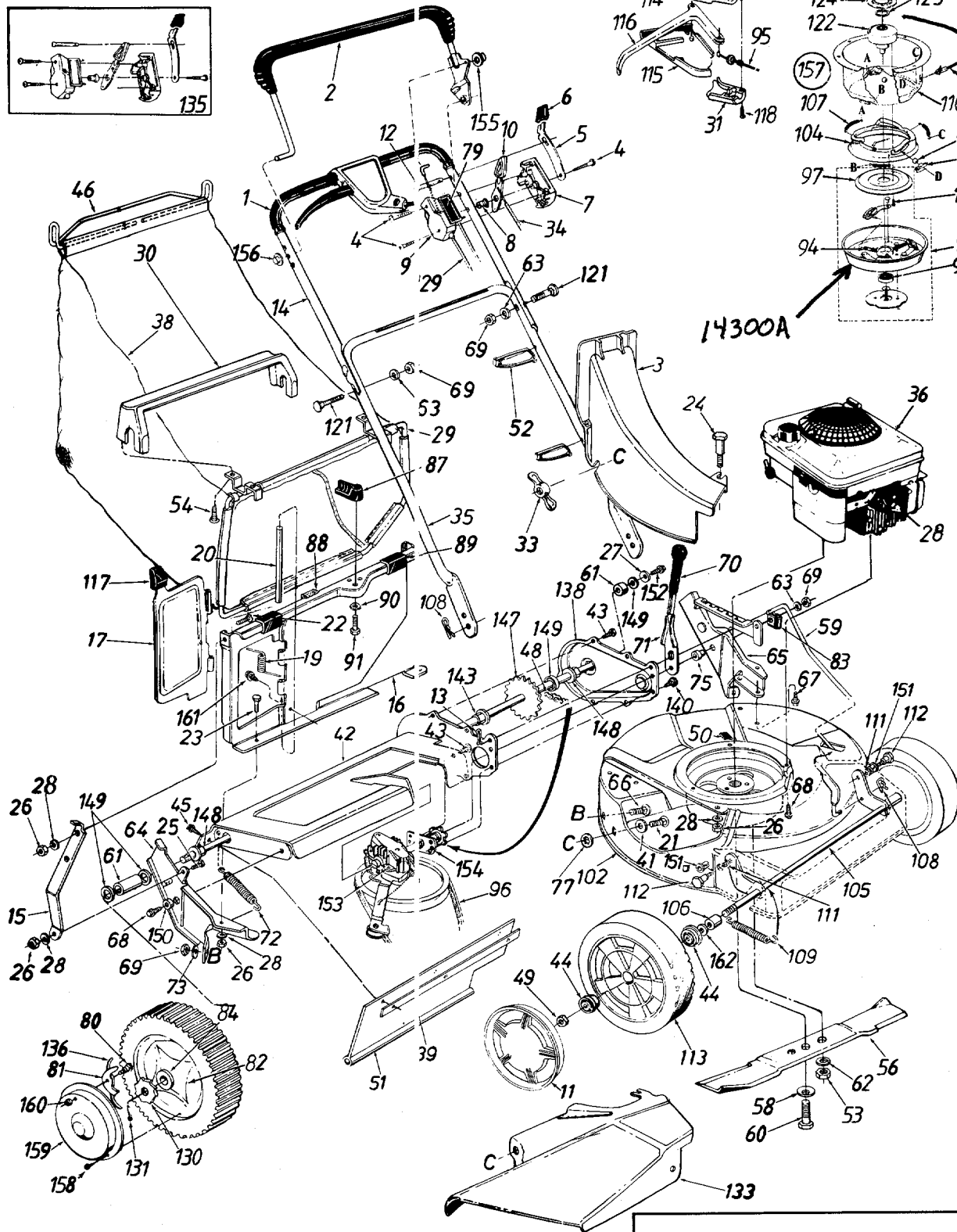
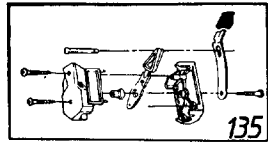
Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	<ol style="list-style-type: none"> 1. Spark plug wire disconnected. 2. Throttle control lever not in CHOKE position. 3. Fuel shut-off valve closed. 4. Fuel tank empty, or stale fuel. 5. Blocked fuel line. 6. Faulty spark plug. 7. Engine flooded. 	<ol style="list-style-type: none"> 1. Connect wire to spark plug. 2. Move throttle lever to CHOKE position. 3. Open fuel shut-off valve. 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 CHOKE position. 2. Spark plug wire loose. 3. Blocked fuel line 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.†
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. 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	Dull blade.	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.

812-00002
Ass'y COMP.

Models 176B and 178B



NOTE

Specifications subject to change without notice or obligation.

Models 176B and 178B

PARTS LIST FOR MODELS 176B AND 178B ROTARY MOWERS

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	720-0225		Foam Grip (2 Req'd.)	60	710-1002		Hex Bolt 7/16-20 x 2.0" Lg. (Grade 5)
2	731-0609		Control Handle Ass'y.—L.H.	61	748-0190		Spacer .513" I.D. x .703" O.D. x .69" Lg.
3	731-0733A		Top Discharge Chute Ass'y.†	62	736-0169		L-Wash. 3/8" I.D.*
4	710-0796		Truss Mach. Scr. #12 x 1.50" Lg.	63	736-0119		L-Wash. 5/16" I.D.*
5	732-0401		Lockout Spring	64	16136A		R.H. Handle Wheel Brkt. Ass'y.
6	720-0190		Spring Lever Knob	65	16137B		L.H. Handle Wheel Brkt. Ass'y.
7	731-0817A		Control Panel Half	66	710-0260		Carriage Bolt 5/16-18 x .62"*
8	731-0524		Control Disc Pin	67	710-0603		Hex Wash. Hd. B-Tap Scr. 5/16-18 x .5" Lg.
9	731-0816A		Clutch Panel Half	68	710-0654A		Hex Wash. Hd. TT-Tap Scr. 3/8-16 x 1.0" Lg.
10	731-0972		Throttle Control Lever	69	712-0267		Hex Nut 5/16-18 Thd.*
11	731-0354		Hub Cap	70	720-0223		Grip
12	731-0607		Lock Pin .314" Dia. x 1.75"	71	732-0473B		Height Adj. Lever
13	714-0507		Cotter Pin 3/32" Dia. x .75" *	72	732-0481		Extension Spring .50" O.D. x 3.80" Lg.
14	749-0439A		Upper Handle	73	736-0242		Bell-Wash. 5/16" I.D.
15	16129		Panel Support Brkt.	75	750-0624		Shld. Spacer .500" Dia. x .100
16	17196A		Top Catcher Panel Ass'y.	77	726-0233		Bolt Retainer 1/4 x .50" O.D.
17	17095		Top Discharge Door	79	777-5811		Control Label
19	732-0483A		Torsion Spring	80	738-0137		Shld. Scr. .342" Dia. x .268
20	747-0514		Pivot Pin	81	748-0188B		Pawl
21	710-0134		Carriage Bolt 1/4-20 x .62" *	82	734-1411		Wheel Ass'y. Comp.
22	710-0286		Truss Mach. Scr. 1/4-20 x .5" Lg.	83	726-0175		Clamp
23	710-0289		Hex Bolt 1/4-20 x .50" Lg.*	84	741-0180		Flange Ball Bearing 1/2" I.D.
24	738-0704		Shoulder Bolt .312 Dia. x .18 Lg. Special	87	720-0224		Grass Catcher Locking Knob
25	710-0258		Hex Bolt 1/4-20 x .62" Lg.*	88	722-0139		Foam Strip 1" Lg.
26	712-0287		Hex Nut 1/4-20 Thd.*	89	731-0883		Panel Clip
27	736-0270		Bell-Wash. 1/4" I.D.	90	736-0271		Spring Wash. .32" I.D.
28	736-0329		L-Wash. 1/4" I.D.*	91	710-0875		Hex Wash. TT-Tap Scr. 1/4-20 x .75" Lg.
29	16702B		Front Grass Catcher Frame	92	717-0888A 14500A	N	Clutch Blade Housing Ass'y.—ZMC. 12.
30	731-0801		Grass Catcher Handle	93	741-0124		Ball Brg. .669" I.D. x 1.574"
31	731-1059		S.P. Control Cover	94	732-0396		Comp. Spring .35" O.D. x 2.0" Lg.
32	735-0639		Spark Plug Insulator	95	746-0710		S.P. Cable x 48" Lg.
33	712-0388		Wing Nut	96	754-0343		"V"-Belt
34	746-0674		Throttle Control Wire 61" Lg.	97	14304A		Clutch Cone
35	749-0504C		Lower Handle	99	731-0520	629	Ball Block
36	—		Engine	102	17075		21" Deck Ass'y.
38	764-0212B		21" Top Discharge Grass Bag—Black	103	741-0326		Steel Ball .50" Dia.
39	14835		Retaining Strip	104	719-0283	N	Brake Cup Cone
41	736-0204		Fl-Wash. .344" I.D. x .62"	105	10662B		Front Axle Ass'y.
42	17055B		Chain—Axle Ass'y.	106	711-0313		Sleeve .526" I.D. x .690" O.D. x .880" Lg.
43	710-0352		Hex B-Tap Scr. 1/4" x .38" Lg.	107	732-0397		Ext. Spring 1.75" Lg.
44	741-0180		Flange Ball Bearing 1/2" I.D.	108	714-0104		Intern. Cotter Pin 5/16" Dia.
45	710-0776A		Hex AB-Tap Scr. 1/4 x .62"	109	732-0482		Extension Spring .50" O.D. x 3.20" Lg.
46	747-0495		Upper Bag Handle	110	14309B	N	Clutch Housing
48	713-0353		#48 Chain .500" Pitch x 30 Links	111	736-0221		Intern. L-Wash. 3/8 I.D.*
49	712-0346		Hex L-Nut 1/4-20 Thd.	112	738-0705		Shld. Bolt .623" Dia. x .425
50	731-0564		Plug	113	734-0922		Wheel Ass'y. Comp.
51	731-0672A		Rear Flap 3.75" x 17.30" Lg.	114	731-1057		Self-Propelled Control Cover
52	726-0240		Cable Tie	115	731-1058		Self-Propelled Control Cover
53	712-0328		Hex Nut 3/8-24 Thd. (Gr. 8)				
54	710-0969		Hex AB-Tap Scr. #12 x 1.0" Lg.				
56	742-0306A		21" Blade				
58	736-0412		Bell-Wash. .46" I.D. x .88" O.D.				
59	747-0510		Height Adj. Rod 19.42" Lg.				

Models 176B and 178B

PARTS LIST FOR MODELS 176B AND 178B ROTARY MOWERS (CONTINUED)

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
116	731-0620		Control Lever	143	741-0522		Hex Flange Brg. .506" I.D.
117	720-0190		Door Grip	147	738-0719A		Rear Shaft Ass'y. 21.94" Lg.
118	710-0841		Fl-"C"-Sunk Hd. Tap Scr. #10 x .75" Lg.	148	741-0324		Hex Flange Bearing .506" I.D. Plastic
121	710-0671		Curved Carr. Bolt 5/16-13 x 1.38" Lg.	149	736-0160		Fl-Wash. .531" I.D. x .930" O.D.
122	756-0504		Fixed Pulley Adapter	150	750-0736		Spacer .383" I.D. x .503" O.D.
123	736-0409		Serrated Washer 1.0" I.D.	151	741-0491		Flanged Nyliner Brg.
124	756-0503		Serrated Pulley Half	152	710-0751		Hex Bolt 1/4-20 x .62" Lg. (Grade 5)
127	736-0450		Bell-Wash. 1.01" I.D.	153	717-0417B	N	Transmission Comp. (See Breakdown)
128	748-0332		Crankshaft Spacer				Hex Bearing Cup
129	746-0406		Control Cable—49" Lg.	154	16500		Push Cap
130	748-0318		Ratchet Wheel 1.62" O.D.	155	726-0245		Push Cap
131	714-0115		Cotter Pin 1/8" Dia. x 1.00" Lg.*	156	726-0135		Blade Brake Clutch Ass'y. Comp.
133	731-0886		Side Chute Deflector Ass'y.	157	812-00002	N	Pan Hd. Tap Scr. #12 x .50" Lg.
135	753-0431		Kit—Control Housing Ccmp.	158	710-0748		Hub Cap
136	10622B		Spring—Nylon	159	10647		Hex Ins. L-Nut 1/4-20 Thd.
138	17053A		Chain Cover	160	712-0324		Hex B-Tap Scr. #10 x .38"†
140	710-0599		Hex Wash. S-Tap Scr. 1/4-20 x .50" Lg.	161	710-0429		Fl-Wash. .51" I.D. x .75" O.D.
				162	736-0108		

*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 below if color or finish is important when ordering parts. [i.e., 629 for Silver Flake Finish].

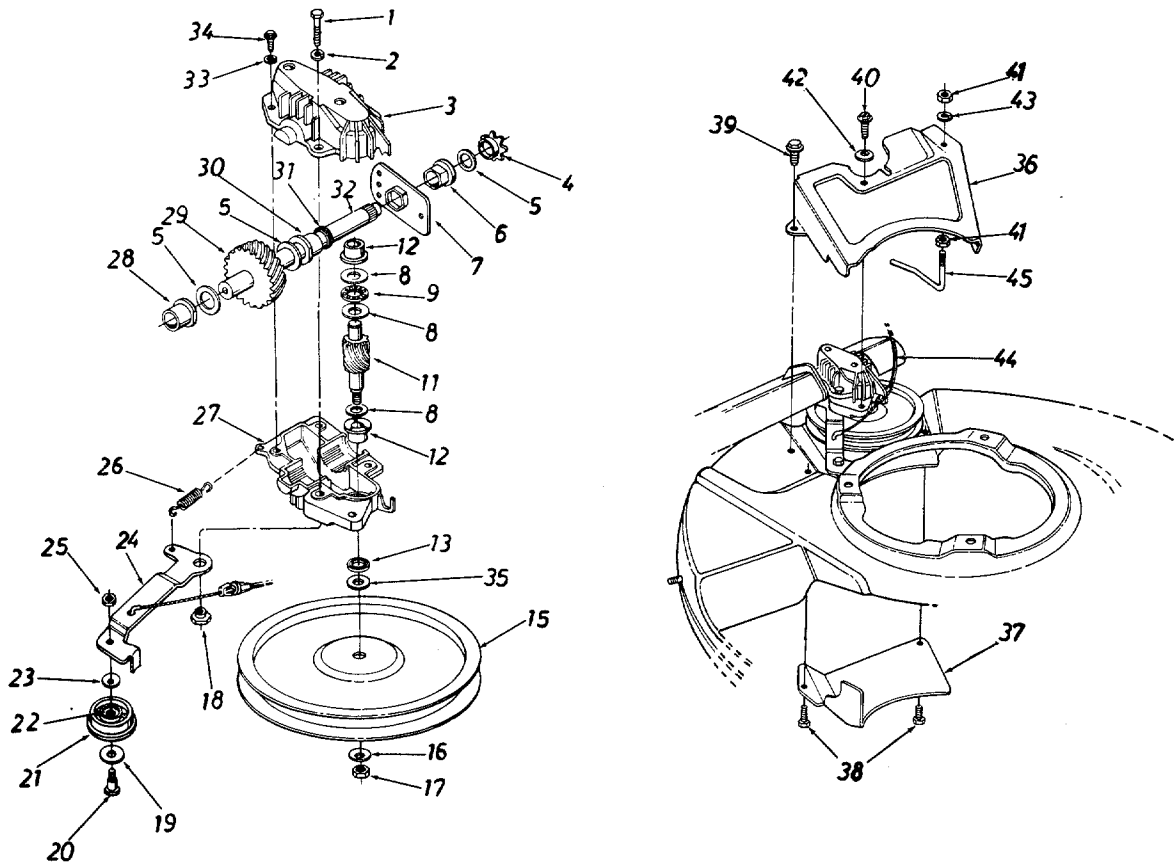
NOTE: The engine is not under warranty by the mower manufacturer... If repairs or service is needed on the engine, please contact your nearest authorized engine service outlet. Check the "Yellow Pages" of your telephone book under "Engines—Gasoline."



Color Codes

456—Radiant Tangerine	629—Silver Flake
460—Green Flake	630—Metallic Blue
483—Charcoal Gray	637—Black
498—Yellow	638—Red
499—Beige	640—Green
621—Brilliant Fire Mist	646—CM Blue

Models 176B and 178B



PARTS LIST FOR MODELS 176B AND 178B ROTARY MOWERS

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	710-1062		Hex Bolt 1/4-20 x 1.25" Lg.*	24	17052A		Idler Brk't. Ass'y.†
2	726-0329		L-Wash. 1/4" I.D.*	25	712-0138		Hex Patch L-Nut 1/4-28 Thd.†
3	717-0418A		Upper Hsg. Half	26	732-0357		Extension Spring 1.12" Lg.†
4	713-0400		#48 Sprocket 7 Tooth x 1/2 Pitch	27	717-0419A		Lower Hsg. Half
5	736-0336		FI-Wash. 5/8" I.D. x .030	28	741-0415		Flange Bearing .56 Dia.
6	741-0413		Hex Flange Brg. .631" I.D.	29	717-0422		33 Tooth Helical Gear
7	16500A		Hex Bearing Cup	30	741-0414		Flange Bearing .629 Dia.
8	736-0314		Thrust Wash. .382" I.D. x .70" O.D.	31	721-0213		Oil Seal .625 Dia.
9	741-0479		Thrust Bearing .375" I.D. x .812" O.D.	32	738-0607		Gear Sprocket Shaft
11	717-1216	N	11 Tooth Helical Gear	33	736-0722		L-Wash. #10 I.D.
12	748-0208A		Flange Bearing	34	710-0436		Hex B-Tap Scr. #10 x .62"
13	721-0212		Oil Seal	35	736-0410		Hex Washer .26" x .88"†
15	756-0330A		FI-Pulley 5.06" I.D.†	36	17058A	N	Transmission Belt Guard†
16	736-0270		Bell-Wash. .265" I.D. x .75"†	37	17065A		Belt Cover
17	712-0351		Hex Nut 1/4-28 L.H. Thd.†	38	710-0352		Hex B-Tap Scr. 1/4 x .38" Lg.†
18	738-0440		Shld. Spacer .375" Dia. x .170"†	39	710-0599		Hex AB-Tap Scr. 1/4 x .50" Lg.†
19	736-0344		FI-Wash. .390" I.D. x 1.0"†	40	710-0896		Hex B-Tap Scr. 1/4 x .62" Lg.
20	738-0826	N	Shld. Bolt .375" Dia. x .40"†	41	712-0287		Hex Nut 1/4-20 Thd.*†
21	756-0558	N	FI-Idler Plastic 1.50" Dia.†	42	736-0270		Bell-Wash. .265" I.D. x .75"†
22	741-0556	N	Needle Brg. .375" x .31"†	43	736-0329		L-Wash. 1/4" I.D.*†
23	736-0270		Bell-Wash. .265" I.D. x .75"†	44	746-0710		S.P. Cable—48" Lg.†
				45	747-0549		S.P. Belt Guard†
				—	717-0417B	N	Transmission Comp.

†Not Part of Transmission Complete

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.

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.

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.

ARKANSAS	NORTH LITTLE ROCK	BROWNS SUMMIT
Sutton's Lawn Mower Shop	5301 Roundtop Drive Box 368, Rt. 4 72117	Dixie Sales Company 5920 Summit Ave. 27214
CALIFORNIA	PORTERVILLE	OHIO
Billious	75 North D Street 3257	Stebe's Mid-State Mower Supply
COLORADO	DENVER	Bleckrie, Inc.
Spitzer Industrial Products Co.	6601 N. Washington St. 30229	National Central
FLORIDA	JACKSONVILLE	Burton Supply Co.
Radco Distributors	4909 Victor St. Box 5459 32207	PENNSYLVANIA
Small Eng. Dist.	HIALEAH	EECO Inc.
ILLINOIS	7995 W. 26th Court 33016	Bluemont Co.
Keen Edge Co.	LYONS	Frank Roberts & Sons
INDIANA	8615 Ogden Ave. 30534	Scranton Auto Ignition Co.
Parts & Sales Inc.	ELKHART	TENNESSEE
IOWA	2101 Industrial Pkwy. Box 277 46516	Ace Distributors
Power Lawn & Garden Equip.	DUBUQUE	Chilton Air Cooled Engine
MARYLAND	2551 J.F. Kennedy 52001	TEXAS
Center Supply Co.	BELTSVILLE	Marr Brothers, Inc.
MASSACHUSETTS	6802 Industrial Dr. #208 20705	UTAH
Morton B. Collins Co.	SPRINGFIELD	Powered Products
MICHIGAN	300 Birnie Ave. 01107	VIRGINIA
Power Equipment Dist.	MOUNT CLEMENS	RBI Corp.
MINNESOTA	340 Hubbard 48043	WASHINGTON
Hance Distributing Inc.	PLYMOUTH	Equip. Northwest
MISSOURI	12795 16th Ave. North 55441	WISCONSIN
Oscar Wilson Engine & Parts	EARTH CITY	Wisconsin Magneto Inc.
Automotive Equip. Service	4159 Shoreline Dr. 63045	PUERTO RICO
NEW YORK	KANSAS CITY	Island Distribution Center
Gamble Dist., Inc.	3117 Holmes St. 64109	BROWNS SUMMIT
	CARTHAGE	102 N. St. 00604
	West End Ave. Box 389 13619	

WARRANTY PARTS AND SERVICE POLICY

(0689)

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 no 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 Date Code of unit involved.
2. Date unit was purchased.
3. Date of Failure.
4. Nature of Failure.