



# Owner's Manual

- SET-UP
- OPERATION
- MAINTENANCE

**IMPORTANT**  
**Read Safety Rules and**  
**Instructions Carefully**

## IMPORTANT !

Record the Model No. and  
Mfg. Code which appear on  
your unit in the space pro-  
vided. You must have these  
numbers, along with the date  
of purchase, in order to re-  
ceive warranty or service.



Model Number	Serial Number
XXXXXXXXXX	XXXXXXXXXX

**White**  
**OUTDOOR** WHITE OUTDOOR  
KITCHENER, ON N2G 4J1

**HYDROSTATIC LAWN TRACTORS**  
**Model: L-160H**

DATE PURCHASED: -  
PRINTED IN CANADA


COPY DIRECTLY FROM THE UNIT.

OGRM-5501

*This unit has been inspected against the manufacturers quality check list. In case of a discrepancy, please call us. We will make every effort to ship the part(s) by courier within one working day of your call.*

## IMPORTANT SAFE OPERATION PRACTICES



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



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

### GENERAL OPERATION

- Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
- Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
- Never allow adults to operate this machine without proper instruction.
- To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children and pets at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
- Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys, and other foreign objects which could be picked up and thrown by the blade(s). Thrown objects can cause serious personal injury.
- Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
- Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes and jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals.
- Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without the discharge cover or entire grass catcher in its proper place.
- Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet.
- A missing or damaged discharge cover can cause blade contact or thrown object injuries.
- Stop the blade(s) when crossing gravel drives, walks, or roads and while not cutting grass.
- Watch for traffic when operating near or crossing roadways. This machine is not intended for use on any public roadway.
- Do not operate the machine while under the influence of alcohol or drugs.
- Mow only in daylight or good artificial light.
- Never carry passengers.
- Disengage blade(s) before shifting into reverse. Back up slowly. Always look down and behind before and while backing to avoid a back-over accident.
- Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
- Disengage blade(s), set parking brake, stop engine and wait until the blade(s) come to a complete stop before removing grass catcher, emptying grass, unclogging chute, removing any grass or debris, or making any adjustments.
- Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set parking brake, stop engine and remove key before dismounting.
- Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down ramp(s), because the unit could tip over, causing serious personal injury. The unit must be pushed manually on ramp(s) to load or unload properly.
- Muffler and engine become hot and can cause a burn. Do not touch.
- Check overhead clearances carefully before driving under low hanging tree branches, wires, door openings etc., where the operator may be struck or pulled from the unit, which could result in serious injury.
- Disengage all attachment clutches, depress the brake pedal completely and shift into neutral before attempting to start engine.
- Your machine is designed to cut normal residential grass of a height no more than 10". Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the mower deck presenting a potential fire hazard.
- Use only accessories and attachments approved for this machine by the machine manufacturer. Read, understand and follow all instructions provided with the approved accessory or attachment.

- Data indicates that operators, age 60 years and above, are involved in a large percentage of riding mower-related injuries. These operators should evaluate their ability to operate the riding mower safely enough to protect themselves and others from serious injury.
- If situations occur which are not covered in this manual, use care and good judgment. Contact an authorized MTD Service Dealer for assistance.

#### **SLOPE OPERATION**

- Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.
- For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

#### **DO:**

- Mow up and down slopes, not across. Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use slow speed. Choose a low enough speed setting so that you will not have to stop or shift while on the slope. Tires may lose traction on slopes even though the brakes are functioning properly. Always keep machine in gear when going down slopes to take advantage of engine braking action.
- Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
- Use extra care with grass catchers or other attachments. These can change the stability of the machine.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
- **DO NOT:**
- Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
- Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff, ditch, or if an edge caves in.
- Do not try to stabilize the machine by putting your foot on the ground.
- Do not use a grass catcher on steep slopes.
- Do not mow on wet grass. Reduced traction could cause sliding.
- Do not shift to neutral and coast downhill. Over-speeding may cause the operator to lose control of the machine resulting in serious injury or death.

- Do not tow heavy pull behind attachments (e.g. loaded dump cart, lawn roller, etc.) on slopes greater than 5 degrees. When going down hill, the extra weight tends to push the tractor and may cause you to lose control. (e.g. tractor may speed up, braking and steering ability are reduced, attachment may jack-knife and cause tractor to overturn).

#### **CHILDREN**

- Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. They do not understand the dangers. Never assume that children will remain where you last saw them.
  - a. Keep children out of the mowing area and in watchful care of a responsible adult other than the operator.
  - b. Be alert and turn machine off if a child enters the area.
  - c. Before and while backing, look behind and down for small children.
  - d. Never carry children, even with the blade(s) shut off. They may fall off and be seriously injured or interfere with safe machine operation.
- Use extreme care when approaching blind corners, doorways, shrubs, trees or other objects that may block your vision of a child who may run into the machine.
- Disengage the cutting blade(s) before shifting in reverse. The "No-Cut-In Reverse" feature is a reminder not to cut in reverse and to help avoid back over accidents. Do not defeat it.
- Keep children away from hot or running engines. They can suffer burns from a hot muffler.
- Remove key when machine is unattended to prevent unauthorized operation.
- Never allow children under 14 years old to operate the machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.

#### **TOWING**

- Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
- Follow the manufacturers recommendation for weight limits for towed equipment and towing on slopes.
- Never allow children or others in or on towed equipment.
- On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
- Travel slowly and allow extra distance to stop.
- Do not shift to neutral and coast downhill.

#### **SERVICE**

##### **SAFE HANDLING OF GASOLINE:**

- To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
- Use only an approved gasoline container.

- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
- When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never fuel machine indoors.
- Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
- Never over fill fuel tank. Fill tank to no more than 1/2 inch below bottom of filler neck to allow space for fuel expansion.
- Replace gasoline cap and tighten securely.
- If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
- To reduce fire hazards, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
- Never store the machine or fuel container inside where there is an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
- Allow a machine to cool at least 5 minutes before storing.

#### GENERAL SERVICE:

- Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless, and deadly gas.
- Before cleaning, repairing, or inspecting, make certain the blade(s) and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.
- Periodically check to make sure the blades come to complete stop within approximately (5) five seconds after operating the blade disengagement control. If the blades do not stop within the this time frame, your unit should be serviced professionally by an authorized MTD Service Dealer.
- Check brake operation frequently as it is subjected to wear during normal operation. Adjust and service as required.
- Check the blade(s) and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade(s) for damage (e.g., excessive wear, bent, cracked).
- Replace the blade(s) with the original equipment manufacturer's (O.E.M.) blade(s) only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
- Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never tamper with the safety interlock system or other safety devices. Check their proper operation regularly.
- After striking a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before starting and operating.
- Never attempt to make adjustments or repairs to the machine while the engine is running.
- Grass catcher components and the discharge cover are subject to wear and damage which could expose moving parts or allow objects to be thrown.
- For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
- Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
- Maintain or replace safety and instruction labels, as necessary.
- Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.



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

This owner's manual covers various models of lawn tractors. The units illustrated may vary slightly from your unit. Follow only those instructions which pertain to your model lawn tractor.

**IMPORTANT:** This unit is shipped **WITHOUT GASOLINE**. Check oil before starting engine. Do not overfill. 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 unit is observed from the driver's seat, facing forward.

## REMOVING FROM THE CRATE

Refer to crate opening instructions in the clear envelope attached to the crate.

## ATTACHING THE BATTERY CABLES

**NOTE:** The positive battery terminal is marked Pos. (+). The negative battery terminal is marked Neg. (-).

- For your convenience, the battery has been installed in your rider and the positive (red) cable has been attached to the positive (+) terminal of the battery. You must attach the negative (black) cable to the battery.
- Remove the hex bolt and nut from the negative cable (-). Attach the negative cable (heavy black wire) to the negative battery terminal (-) with the bolt and nut.

**NOTE:** If battery is put into service after date shown on top of battery, charge for minimum of one hour at 6-10 amps. Refer to the **MAINTENANCE** section of this manual for more detailed instructions regarding proper battery charging procedure.

## BATTERY SAFETY INSTRUCTIONS

1. Shield eyes (e.g., goggles, face shield) and protect skin and clothing when handling battery acid (electrolyte) or battery containing acid.
2. Keep sparks, flames, cigarettes and other sources of ignition away. Battery contains explosive gases.
3. Work in a well ventilated area when filling (activating), charging and using the battery.
4. When not in use, keep the terminal covers in place.

5. Do not short battery terminals (make a connection between the two battery posts or between the positive (+) terminal and the frame of the tractor). Before installing battery, remove metal bracelets, wrist-watch bands, rings, etc., from your person.
6. Connect positive terminal first to prevent sparks from accidental grounding.
7. Do not use the tractor battery to start other vehicles.

## ATTACHING THE STEERING WHEEL

1. The hardware for attaching the steering wheel is located under the steering wheel cap.
2. Remove the steering bellow from the lift lever on the right hand side of lawn tractor. Place steering bellow over the steering shaft extending through the dash.

**NOTE:** If the openings on each end of the steering bellow are two different sizes, the smaller end goes down against the dash of the lawn tractor.

3. Position the front wheels of the tractor so they are pointing straight forward.
4. Place the steering wheel over the steering shaft, positioning steering wheel as desired.
5. Place the washer with the cupped side down over the steering shaft. Secure with hex lock bolt. See figure 1.
6. Place the **steering wheel cap** over the center of the steering wheel and seat it with your hand. See figure 1.
7. If your unit is equipped with a **steering insert** packed in a plastic bag with the literature, snap it over the round steering wheel cap. See figure 1.

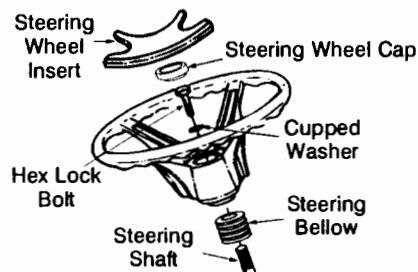


FIGURE 1

### ATTACHING THE SEAT

Remove the hex self-tapping screws which secure the seat to the seat pivot bracket.

**NOTE:** Self-tapping screws for attaching the large deluxe seat can be found in the plastic bag with the literature.

Place the seat in position against the seat pivot bracket lining up the slotted holes in the pivot bracket with the holes in the seat. Select desired position for the seat, and secure with hex self-tapping screws. See figure 2.

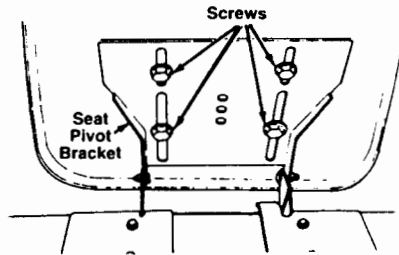


FIGURE 2

### Chute Brace Removal



**WARNING:** Make sure the tractor's engine is off, remove the key from the ignition switch and apply the tractor's parking brake before removing the discharge chute brace.



**WARNING:** Do NOT operate the tractor without first removing the discharge chute brace from the area between the discharge and the cutting deck. It is in place for shipping reasons only.



**WARNING:** The mowing deck is capable of propelling objects. Failure to operate the tractor without the discharge chute properly in place could result in serious injury to people and/or damage to property in the vicinity of the tractor.

1. Locate the discharge chute brace and accompanying warning tag on the right side of the mower, between the discharge chute and the cutting deck. See Figure 3.
2. While holding the discharge chute with your left hand, remove the chute brace with your right hand by grasping it be-

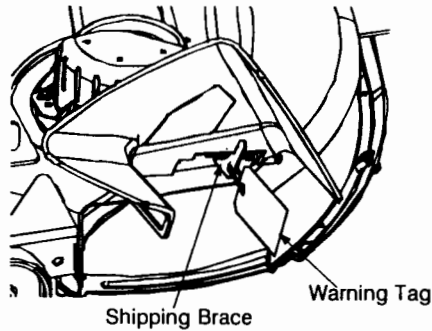


FIGURE 3

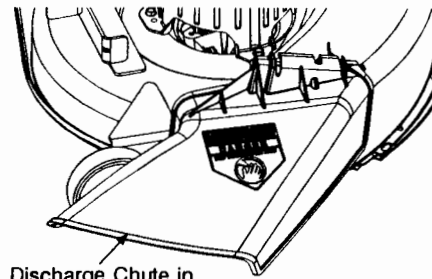


FIGURE 4

tween your thumb and index finger and rotating it clockwise.

3. Carefully allow the discharge chute to pivot downward. See Figure 4.
4. Discard the chute brace and accompanying warning tag.

### TIRE PRESSURE

For shipping purposes, the tires on your unit may be over inflated. Tire pressure should be reduced before unit is put into operation. Recommended operating tire pressure should be 12 p.s.i.

Check sidewall of tire for manufacturer's maximum tire pressure. If this information does not appear on your tire, maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

### LEVELLING THE DECK

With the unit on a hard, level surface, measure the distance from the bottom edge of the center of the left side of deck to the ground. Measure the same distance on the right side of the deck, just behind the chute area. Or, place the blades in a straight line,

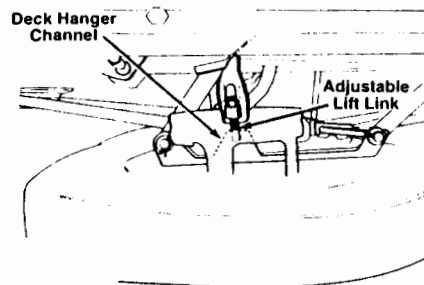


FIGURE 5

and measure the distance from the outside edge of the blade tips to the ground.

If adjustment is needed, proceed as follows.

1. Remove the hairpin clip and flat washer from the bottom of the adjustable lift link on the left side of the deck. (Hairpin clip and flat washer are on the inside of the lift link.)
2. Pull the adjustable lift link out of the deck hanger channel. See figure 5. Turn the adjustable lift link up or down as necessary to level the deck. Usually only one or two turns are needed.
3. Insert the end of the adjustable lift link into the hole in the deck hanger channel. Recheck the adjustment. Readjust if necessary.
4. When deck is level, secure end of adjustable lift link with flat washer and hairpin clip.

#### **INSTALLING THE MULCHING PLUG (optional)**

Locate the square hole found in the cutting deck surface by pivoting the discharge chute upward.

Install the mulch plug and secure it in place with the carriage bolt, cupped washer and plastic wing nut as illustrated in Figure 6.

Remove the mulching plug for standard side discharge mowing.

#### **FINAL ASSEMBLY**

Make certain all nuts and bolts are tightened securely.

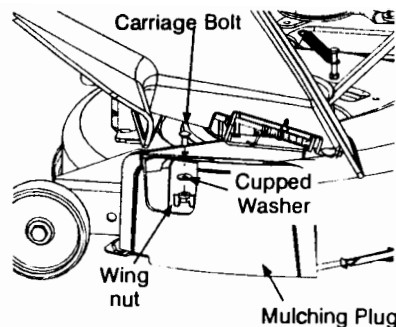


FIGURE 6

## **CONTROLS**

### **THROTTLE CONTROL**

The throttle control is used to regulate the engine speed. To get maximum efficiency from cutting, the throttle should be in the FAST position when operating the mower. See figure 7.

### **CHOKE CONTROL**

The choke control is located on the dashboard and is operated manually. Details for the choke operation are covered in the separate engine manual packed with your unit. See figure 7.

### **HYDROSTATIC CONTROL LEVER**

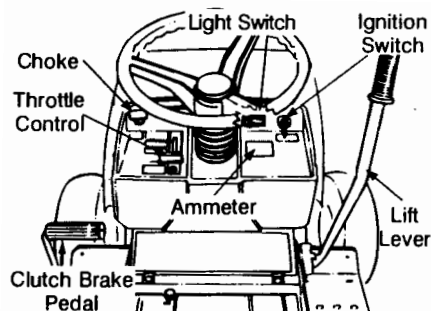
The hydrostatic control lever is located on top of the fender on the right side of the tractor. This single control lever, connected to the hydrostatic transmission, controls both the speed and direction of the tractor. Infinite speed control is achieved by moving the control lever forward or backward. The farther forward or backward you move the control lever, the faster you will travel. Pulling the control lever into neutral (N) area will stop the tractor. See figure 8.

### **IGNITION SWITCH**

Turn the key to the START position to start the engine. When the engine is running, leave the key in the ON position. To stop the engine, turn the key to the OFF position and remove it to prevent accidental starting. See figure 7.

### **LIGHT SWITCH (optional)**

The head lamps are operated by pushing the light switch located on the dashboard. The head lamps will only operate when the engine is running. See figure 7.



FIGURED 7

#### AMMETER (optional)

The ammeter registers the rate of battery charge or discharge. The ammeter will register on the discharging side while starting the engine. It should register on the opposite side (charging) when the engine is running in the fast position until the battery is completely charged. With a fully charged battery or with the engine idling, the ammeter will not show a charge. See figure 7.

#### CLUTCH-BRAKE PEDAL

The clutch-brake pedal is located on the left side of the tractor. Depressing the clutch-brake pedal part way disengages the clutch. Pressing the pedal all the way down disengages the clutch and engages the disc brake. See figure 7.

**NOTE:** The clutch-brake pedal must be depressed to start the engine.

#### PARKING BRAKE

To set the parking brake, depress the clutch-brake pedal pull up the parking brake knob and release the clutch-brake pedal. It will stay in the raised position. To release the parking brake, depress and release the clutch-brake pedal. See figure 9.

**NOTE:** The parking brake must be set if the operator leaves the seat with the engine running.

#### INTERLOCKS (Not Shown)

Interlock safety switches are located by the clutch-brake pedal, the lift lever, the gear shift lever and under the seat.

Before the engine will start, the clutch-brake pedal must be depressed all the way and the lift lever must be in the disengaged position.

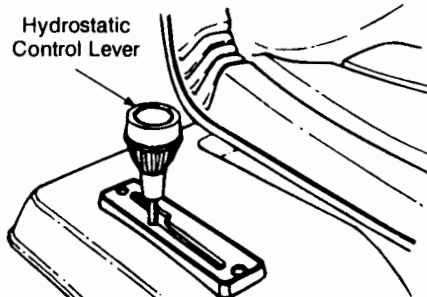


FIGURE 8

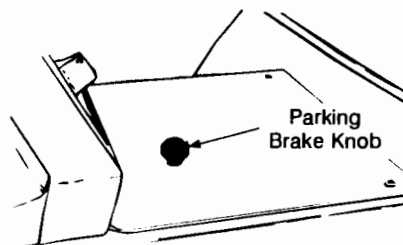
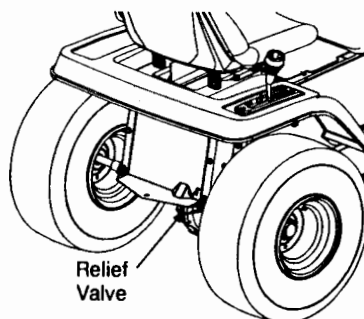


Figure 9



FIGURED 10

Before the unit can be shifted into reverse or if the operator leaves the seat, the lift lever must be in the disengaged position.

**NOTE:** The parking brake must be set if the operator leaves the seat with the engine running.

#### RELIEF VALVE

A hydrostatic relief valve is provided so the unit can be moved without the engine running. The lever which operates the relief valve is located at the rear of the tractor between the wheels. See figure 10.



To operate the relief valve, place the hydrostatic control lever in neutral, release the parking brake. Move the lever from the lock position into the slot to relieve the hydraulic pump. Make sure to release the lever to the lock position before operating the engine.

## CUTTING CONTROLS

### A. LIFT LEVER

The lift lever is used to raise and lower the cutting deck and to engage and disengage the blades. Pulling it all the way back and locking it disengages the blades.

**NOTE:** The lift lever *must* be in the disengaged position when starting the engine, when shifting into reverse and if the operator leaves the seat. See figure 11.

### B. DECK LIFT INDICATOR (optional)

The deck lift indicator marks the position being used for the lift lever. Select the lift lever position desired, press the indicator lever outward, move it to the position immediately below the lift lever and release the indicator lever. See figure 11.

**NOTE:** For the lowest possible cutting height, position the deck lift indicator to the last notch (as shown in figure 11). Lower the lift lever until it is stopped by the deck lift indicator.

### C. SETTING THE CUTTING HEIGHT (optional)

1. Select the position for the lift lever which gives the desired cutting height. Move the deck lift indicator so that the lift lever can be returned to the same position after it is raised.
2. Move the deck wheels (if so equipped) to the hole location so the wheels are 1/4 to 1/2 inch above the ground.

## OPERATION

### STARTING THE ENGINE

**NOTE:** To open the hood simply lift up on both sides of the hood.

1. Service the engine with oil and gasoline as described in the engine manual.
2. Depress the clutch-brake pedal and set the parking brake.
3. Place the lift lever in the DISENGAGED position. See figure 10.

**IMPORTANT:** This unit is equipped with a safety interlock system for your protection. The purpose of the safety interlock system is to prevent the en-

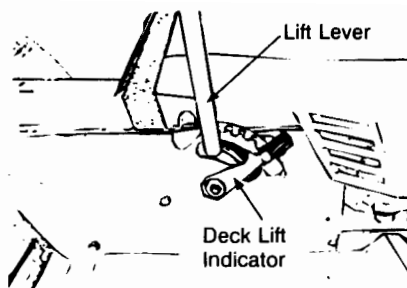


Figure 11

gine from cranking or starting unless the clutch-brake pedal is depressed and the lift lever is in the disengaged position. In addition, the lift lever must be in the disengaged position when the unit is put into reverse or the engine will shut off. If the operator leaves the seat with the lift lever engaged and/or without setting the parking brake, the engine will shut off.



**WARNING:** Do not operate the lawn tractor if the interlock system is malfunctioning because it is a safety device, designed for protection.

4. Set the throttle control in the FAST POSITION. See figure 7.
5. Pull out choke knob to choke engine (a warm engine may not require choking).
6. Turn the ignition key to the START position. When the engine is running, let the key return to the ON position. See figure 7.

**NOTE:** Protect the starter life by using short starting cycles of several seconds. Cranking more than 15 seconds per minute can damage the starter motor.

7. Push choke knob in gradually. Move the throttle control to desired engine speed.

### STOPPING THE ENGINE

Turn the ignition key to the left to the OFF position. Remove the key to prevent accidental starting.

**IMPORTANT:** If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the unit for any damage, and repair the damage before re-starting and operating the mower.

**NOTE:** If any problems are encountered, refer to the Trouble Shooting Chart.

## OPERATING THE LAWN TRACTOR

1. Set the desired cutting height, see page 8.
2. Start the engine as instructed.
3. Move throttle control to 3/4 or full throttle to prevent strain on the engine and to operate the cutting blades.
4. Depress the clutch-brake pedal so the parking brake is released, and then release the clutch-brake pedal.
5. Place the hydrostatic control lever in either the FORWARD or REVERSE position. The farther forward you move the hydrostatic control lever, the faster you will travel.



**WARNING:** Look to the rear before backing up.

To stop the lawn tractor, pull the hydrostatic control lever into NEUTRAL (N) or depress the clutch brake pedal.

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. For best results and to insure more even grass distribution, do not mow when lawn is excessively wet.

**WARNING:** Before leaving the operator's position for any reason, disengage the blades, place the hydrostatic control lever in neutral, engage the parking brake, shut engine off and remove the key.

When stopping the unit to empty a grass bag, etc., follow the instructions above. This procedure will also eliminate "browning" the grass, which is caused by hot exhaust gases from a running engine.

### OPERATING THE CUTTING BLADES

**CAUTION:** Cutting grass in sandy soil conditions causes abrasive wear to the blades.

The cutting blades may be engaged while the lawn tractor is moving or standing still. DO NOT engage the cutting blades abruptly as the sudden belt tension on the pulley may cause the engine to stall.



**WARNING:** Keep feet and hands away from the discharge opening, the blades or any part of the deck.

When the unit is used for other than mowing operations, the blade drive should be disengaged.

Move the lift lever into the DISENGAGED position to raise the deck and disengage the blades.

GRASS CATCHER model 190-063 is available as optional equipment for the lawn tractor shown in this manual.



**WARNING:** The mower should not be operated without the entire grass catcher or chute deflector 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.

## ADJUSTMENT



**WARNING:** Disconnect the spark plug wires and ground against the engine before performing any adjustments, repairs or maintenance.

### SEAT ADJUSTMENT

The seat may be adjusted to one of several positions. Refer to seat installation section of assembly instructions.

### DECK LEVELLING ADJUSTMENT

With the unit on a hard, level surface, measure the distance from the bottom edge of the center of the left side of deck to the ground. Measure the same distance on the right side of the deck, just behind the chute area. Or, place the blades in a straight line, and measure the distance from the outside edge of the blade tips to the ground.

Adjust the lift link on the left side of the deck as necessary. See figure 5. Recheck the adjustment.

### HYDROSTATIC NEUTRAL CONTROL ADJUSTMENT

The hydrostatic transmission control is in correct adjustment when the tractor does not move with the engine running, the clutch engaged and the hydrostatic control lever in the neutral position.

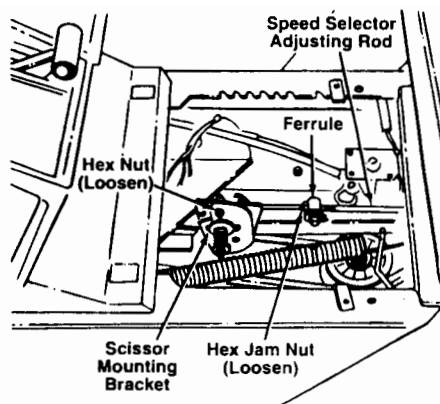


FIGURE 12

If adjustment is necessary, follow these steps:

1. Raise both rear wheels off the ground by placing blocks under the rear frame.
  2. Remove the transmission panel by removing the parking brake knob and truss machine screws.
  3. Loosen the hex jam nut on the speed selector adjusting rod. See figure 12.
  4. Loosen the hex nut on the scissor mounting bracket. See figure 12.
  5. Start the engine and run at full throttle.
  6. Move the hydrostatic control lever until you find neutral (rear wheels do not rotate in either direction).
- ! WARNING:** Be careful of the cooling fan on the hydrostatic transmission.
7. Depress the clutch-brake pedal all the way and set the parking brake.
  8. Shut off the engine.
  9. Tighten the hex nut on the scissor mounting bracket.
  10. Thread the speed selector rod in or out of the ferrule until the hydrostatic control lever lines up in the neutral position on the speed control index bracket.
  11. Tighten hex jam nut against the ferrule.
  12. Replace the transmission panel and parking brake knob.
  13. Remove the blocks from under the frame and test the operation of the tractor.

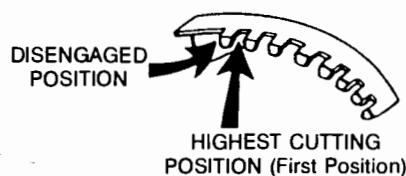


FIGURE 13

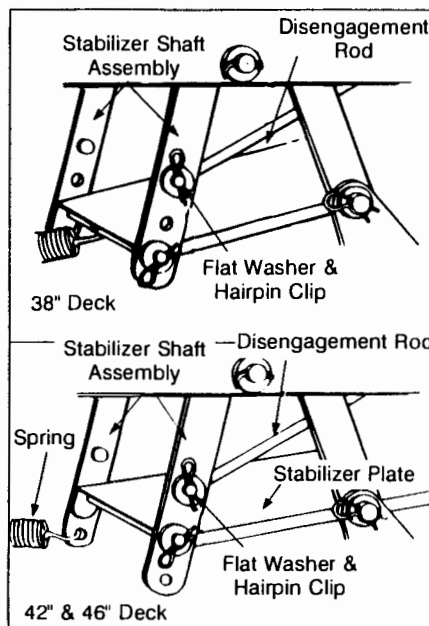


FIGURE 14

### CUTTING DECK ENGAGEMENT ADJUSTMENT

The cutting deck engagement may be adjusted to make certain deck is disengaged when lift lever is in the disengaged position, or to obtain more drive in the cutting positions. Correct adjustment as follows.

With the engine off, place the lift lever in the highest cutting position (first position). See figure 13. Remove the cotter pin and flat washer which secure the disengagement rod to the stabilizer shaft assembly. See figure 14. Shorten the rod by threading it in until the ferrule is against the back of the slot in the lift shaft assembly, and the rod lines up with the hole in the stabilizer shaft. For more belt tension the disengagement rod must be lengthened. To decrease belt tension the disengagement rod must be shortened.

Check the adjustment by placing the lift lever in the disengaged position. The deck should move up and forward, allowing the belt to become loose. Start and test for disengagement. Repeat procedure as necessary.

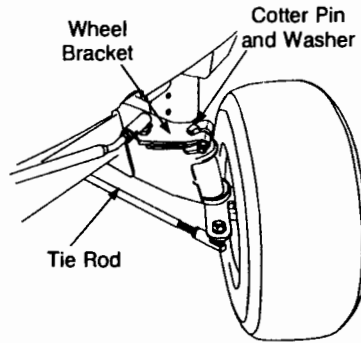


FIGURE 15

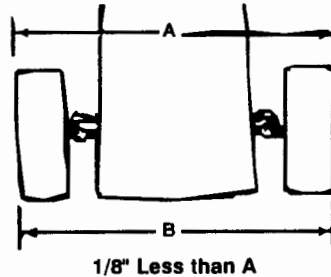


FIGURE 16

### WHEEL ADJUSTMENT

The caster (forward slant of the king pin) and the camber (tilt of the wheels out at the top) require no adjustment. Automotive steering principles have been used to determine the caster and camber on the tractor. The front wheels should toe-in 1/8 inch. To adjust the toe-in, follow these steps.

1. Remove the washer and cotter pin from the ferrule on the left axle bracket. Thread the ferrule on or off the tie rod to adjust.
2. Reassemble the washer and cotter pin. See figure 15.
3. Adjust the tie rod assembly for correct toe-in.

Dimension "B" should be approximately 1/8" less than Dimension "A". See figure 16.

- A. To increase Dimension "B", screw tie rod into tie rod end.
- B. To decrease Dimension "B", unscrew tie rod from tie rod end.

- C. Reassemble tie rod. Check dimensions. Readjust if necessary.

### CARBURETOR ADJUSTMENT

**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. To adjust the carburetor, refer to the separate engine manual.

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

### BRAKE ADJUSTMENT

The brake is located by the right rear wheel inside the frame. During normal operation of this machine, the brakes are subject to wear and will require periodic examination and adjustment.

**WARNING:** Do not have the engine running when you adjust the brake.

**NOTE:** The brake is factory set for a specific running clearance.

To check for proper setting, place a feeler gauge between two of the discs. There should be from 0.015 to 0.025 inch clearance. See figure 17.

If the clearance is not correct make the necessary change with adjustment nut. See figure 18.

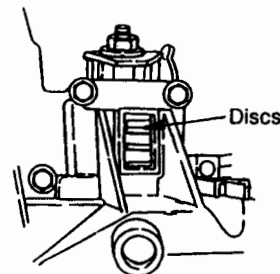


FIGURE 17 - Brake Disc (Bottom View)

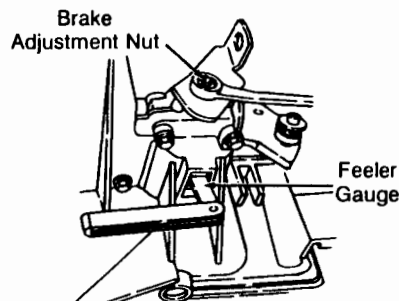


FIGURE 18

## LUBRICATION

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

### STEERING GEARS

Lubricate teeth of steering gears with automotive multi-purpose grease after every 25 hours of operation or once a season. Refer to figure 19.

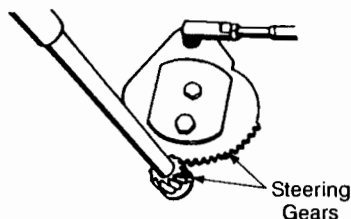


FIGURE 19

### STEERING SHAFT

Lubricate steering shaft at least once a season with light oil.

### WHEELS

The front wheels are provided with grease fittings. The rear wheels must be removed from the axle for lubrication. Lubricate at least once a season with automotive multi-purpose grease.

### PIVOT POINTS

Lubricate all points with light oil at least once a season.

## BALL JOINTS

The ball joints and drag link ends are permanently lubricated.

## HYDROSTATIC TRANSMISSION

The hydrostatic transmission is filled at the factory and does not require checking. If repairs are needed, contact your local service dealer. The hydrostatic transmission contains approximately 2.5 quarts of SAE 20W50 oil.

## MAINTENANCE



**WARNING:** Disconnect the spark plug wire and ground against the engine before performing any repairs or maintenance.

### TROUBLE SHOOTING

Refer to the chart on pages 19 and 20 for trouble shooting engine problems.

## HYDROSTATIC TRANSMISSION COOLING

The hydrostatic transmission is cooled by the oil, fan and fins. If the hydrostatic transmission runs hot, check to see if the fan is in operating condition, the oil level is correct and the fins are clean.

**NOTE:** DO NOT use high pressure water spray or steam to clean the hydrostatic transmission.

## CRANKCASE OIL

Check the oil level in the crankcase before each use of the machine and after every five hours of operation.

Oil level should be maintained as instructed in the separate engine manual.

After the first five hours of operating a new engine, drain the oil from the crankcase while engine is still hot and refill crankcase with new oil; thereafter change the oil every 25 hours of operation. Refer to the engine manual.



**WARNING:** When operating your rider in temperatures below freezing, refer to separate engine manual for proper oil recommendations. Improper grades of oil will result in hard starting and possible engine bore damage.

## AIR CLEANER

Under normal operating conditions, the air cleaner, located on top of the carburetor, must be serviced after every ten hours of use. Under extremely dusty operating condi-

tions, the air cleaner must be serviced after every hour of operation. To service the air cleaner, refer to the separate engine manual packed with your unit.

### CLEANING ENGINE AND BLADE HOUSING

Any fuel or oil spilled on the machine should be wiped off promptly. Grass, leaves, and other dirt must not be left to accumulate around the cooling fins of the engine or on any part of the machine.

Clean the underside of the blade housing after each mowing.

**NOTE:** After washing or pressure washing your lawn tractor relubricate the entire chassis including the front wheels, steering pivot bar and axles, deck lift linkage and shafts.

### SPARK PLUG

The spark plug gap 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 specification.

**NOTE:** Your engine is equipped with a resistor SPARK PLUG, when replacing plug also use resistor type.

**NOTE:** This spark ignition system meets all requirements of the Canadian Interference-Causing Equipment Regulations.

### CUTTING BLADES

#### Removal for Sharpening or Replacement

**WARNING:** Be sure to disconnect and ground the spark plug wire and remove ignition key before working on the cutting blade to prevent accidental engine starting. Protect hands by using heavy gloves or a rag to grasp the cutting blades.

#### Sharpening

Remove the large nut which holds the blade to the blade spindle and remove the blade.

When sharpening the blades, 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.

### Reassembly

Before reassembling the blade to the unit, lubricate the spindle and nut with light oil.

When replacing blades, 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

15/16" Dia. Nut 840 in. lb. min., 1080 in.lb. max.

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

### FUEL FILTER

Your unit is equipped with a replaceable in-line fuel filter. Replace filter whenever contamination or discoloration is noticed. Order replacement filter through your engine authorized service dealer.

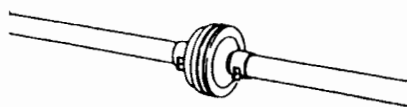


FIGURE 20

### DECK BELT REMOVAL AND REPLACEMENT

**WARNING:** Disconnect the spark plug wire and ground it against the engine. Block the wheels of the unit.

**NOTE:** Figures 21 and 23 are shown with the unit tipped up for clarity. It is not necessary to tip the unit to remove the belts.

However, if tipping the unit is desired, remove the battery from the unit. To prevent gasoline leakage, drain the gasoline, or remove the fuel tank cap, place a thin piece of plastic over the neck of the fuel tank and screw on the cap. Be certain to remove the plastic when finished changing the belts. Block unit securely.

### DECK BELT

1. Place the lift lever in the disengaged position.
2. Remove the belt guard studs (belt keepers) from the engine pulley belt guard. See figure 21.

**NOTE:** When reassembling, make certain studs are assembled in the same locations from which they were removed. See figure 21.

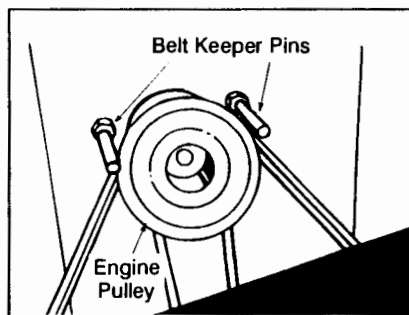


FIGURE 21

**NOTE:** Figure 21 is shown with the unit tipped up for clarity. It is not necessary to tip the unit to remove the belts.

3. Unhook the deck belt from the engine pulley.
4. Place the lift lever in the engaged (all the way forward) position.
5. Disconnect the spring which is attached to a bracket on the transaxle, inside the left rear wheel. Use a spring puller or other suitable tool.
6. Disconnect the six deck links by removing the hairpin clips and flat washers.
7. Disconnect the stabilizer plate from the stabilizer shaft assembly by removing the hairpin clips and flat washers and sliding out the rod. See figure 14.
8. Place the lift lever in the disengaged position.
9. Slide the deck from beneath the lawn tractor.

### For 38" and 42" Decks

10. Remove the belt guards at each deck pulley by removing the self-tapping screws. See figure 22.
11. Remove and replace the belt, reassemble following the instructions in reverse order.

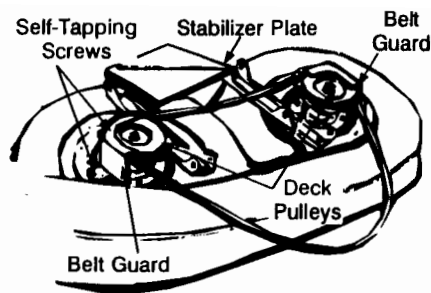


FIGURE 22 - 38" & 42" Decks

### For 46" Decks

10. Remove the top deck drive belt by lifting up on the stabilizer plate, and slipping belt off the pulley.
11. Remove the belt cover at the two outside deck pulleys, by removing the self-tapping screws. See Figure 23.
12. Release the tension on the spring loaded idler by pushing the idler toward the rear of the deck.
13. Remove the belt from around the idler pulleys, and remove from the three deck pulleys. See Figure 24.
14. Reassemble new belts, following instructions in reverse order.

### DRIVE BELT REMOVAL AND REPLACEMENT

#### Drive Belt (See Figure 23)

1. Depress the clutch pedal and set the parking brake.
2. Remove the deck from the lawn tractor.
3. Raise and block the front wheels of the lawn tractor so you can work under it.
4. Remove the transmission panel by removing the parking brake knob and truss machine screws.
5. Raise the seat. Disconnect the battery cables. Remove the battery and battery box from the unit.
6. Disconnect the idler pulley spring which is attached to a bracket on the frame, inside the left rear wheel. Use a spring puller or other suitable tool.
7. Remove the three self-tapping screws from the cooling fan. Remove the fan.
8. Remove the center bolt, lockwasher and flat washer, and let the engine pulley drop down.

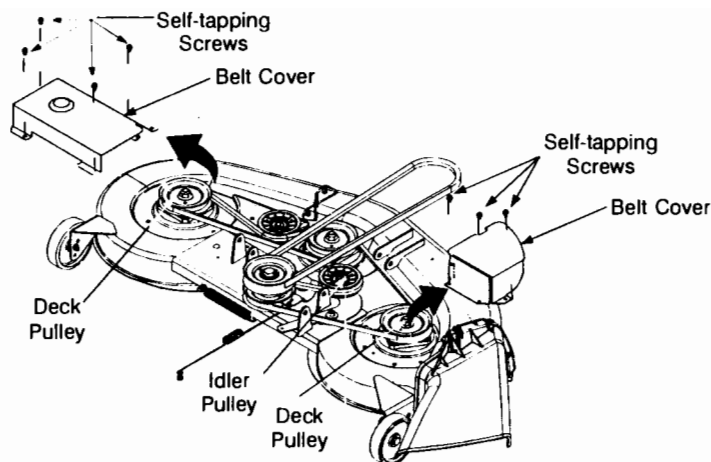


FIGURE 23 - 46" Deck

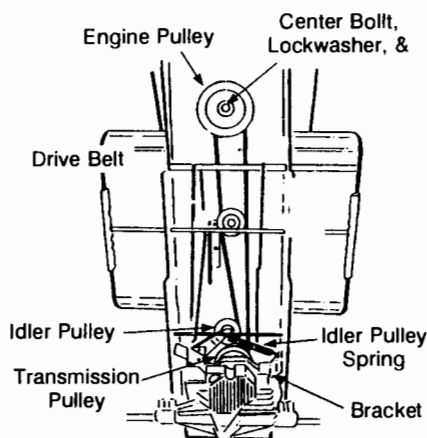


FIGURE 24

9. Roll the belt off of top sheave of engine pulley, onto the pulley hub.
10. Remove the belt from the transmission pulley and engine pulley, and remove from the unit.
11. Reassemble using a new belt, following instructions in reverse order.

#### Optional Oil Drain Sleeve

Your lawn tractor may have a plastic oil drain sleeve packed with the loose parts for your convenience in draining oil from the crankcase. To drain the oil, snap small end of oil drain sleeve onto oil sump. See Figure 25. Remove drain plug and drain oil into a suitable container.

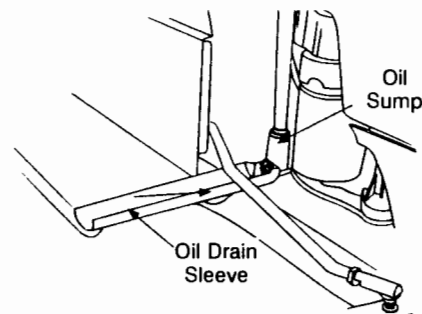


FIGURE 25

#### Optional Oil Drain Valve

Your lawn tractor may have a valve installed on the engine for draining oil from the crankcase. See Figure 26. To drain the oil, insert the 12" hose (shipped loose with your unit) over the end of the valve. Place the other end in a suitable container. Push in black cap, rotate counterclockwise and pull valve open. When oil is completely drained, push top of valve in and rotate clockwise to close.

#### BATTERY CARE AND MAINTENANCE

The battery is sealed and is maintenance-free. Acid levels cannot be checked.

- Always keep the battery cables and terminals clean and free of corrosive build-up.
- After cleaning the battery and terminals, apply a light coat of petroleum jelly or grease to the terminals and over the positive terminal boot.



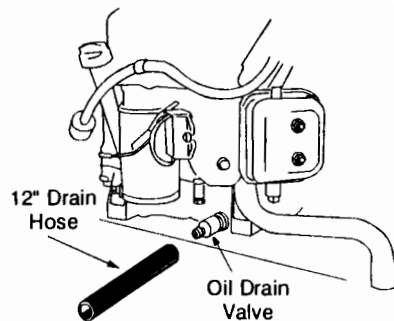


FIGURE 26

- Always keep the boot positioned over the positive terminal to prevent shorting.

**IMPORTANT:** If removing the battery for any reason, disconnect the **NEGATIVE (Black)** wire from its terminal first, followed by the **POSITIVE (Red)** wire. When re-installing the battery, always connect the **POSITIVE (Red)** wire to its terminal first, followed by the **NEGATIVE (Black)** wire. Be certain that the wires are connected to the correct terminals. Reversing them could change the polarity and cause damage to your engine's alternating system.

#### Charging

If the unit has not been put into use for an extended period of time, charge the battery with an automotive-type 12-volt charger for a minimum of one hour at six amps.

**! WARNING:** Batteries give off an explosive gas during and for some time after charging. Charge battery in a well ventilated area and do not allow a spark or an open flame near the battery.

#### JUMP STARTING

1. Attach the first jumper cable from the Positive terminal of the good battery to the Positive terminal of the dead battery.
2. Attach the second jumper cable from the Negative terminal of the good battery to the **FRAME OF THE UNIT WITH THE DEAD BATTERY.**

**! WARNING:** Failure to use this starting procedure could cause sparking, and the gases in either battery could explode.

#### TIRE PRESSURE

Tire pressure should be reduced before unit is put into operation. Recommended operating tire pressure should be 12 p.s.i.

Check sidewall of tire for manufacturer's maximum tire pressure. If this information does not appear on your tire, maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

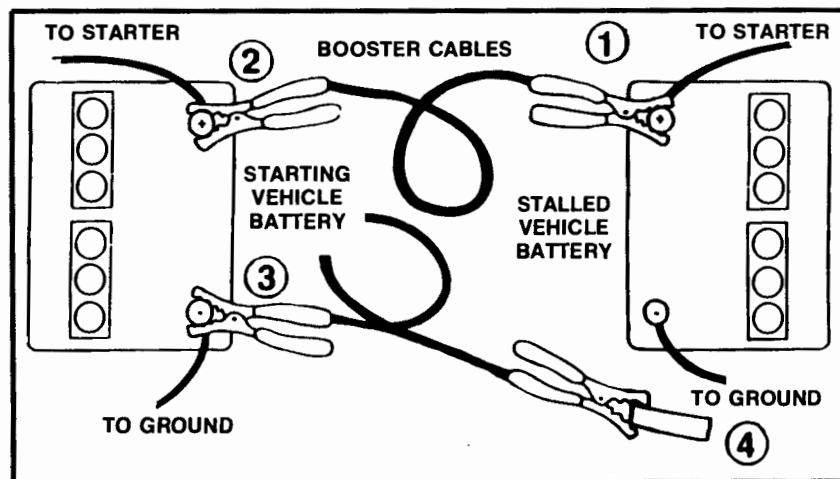


FIGURE 27

### INSTALLATION OF TIRE TO RIM

The following procedure must be followed when removing or installing a tire to the rim.

1. Be sure rim is clean and rust free.
2. Lubricate both the tire and rim generously.
3. Never inflate to over 30 p.s.i. to seat beads.



**WARNING:** Excessive inflation pressure when seating beads may cause tire/rim assembly to burst with force sufficient to cause serious injury.

### OFF-SEASON STORAGE

If the machine is to be inoperative for a period longer than 30 days, prepare for storage as follows.

1. Clean the engine and the entire unit thoroughly.
2. Lubricate all lubrication points. Wipe the entire machine with an oiled rag to protect the painted metal surfaces.
3. Refer to the engine manual for correct engine storage instructions. The engine must be completely drained of fuel to prevent gum deposits from forming on essential carburetor parts, fuel lines and fuel tanks.
4. Refer to battery storage instructions.
5. Store unit in a clean, dry 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 any chains springs, bearings and cables.

## TROUBLE SHOOTING GUIDE

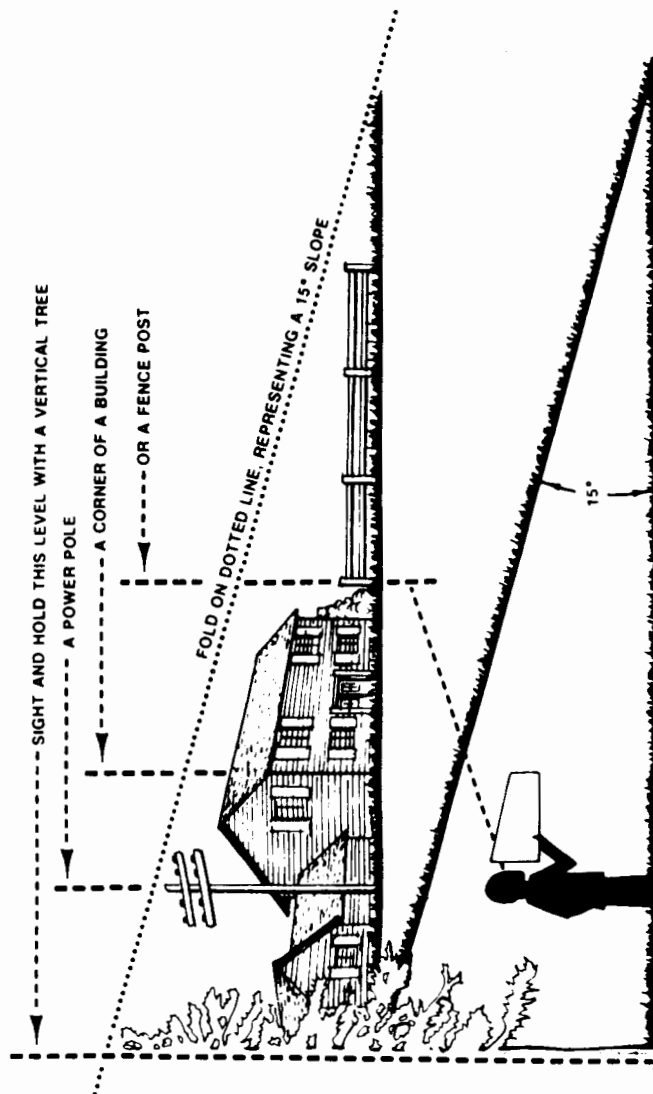
PROBLEM	POSSIBLE(S) CAUSE(S)	CORRECTIVE ACTION
Engine will not crank.	Safety switch button not depressed	There are two switches in the starting circuit of your unit: the clutch pedal switch and the deck lift lever switch. Make certain the actuator is fully depressing the buttons on each switch.
	Battery installed incorrectly	The battery must be installed with negative terminal attached to black ground wire. Negative terminal is identified at the post by "NEG", "N" or "-". The positive terminal, identified by "POS", "P" or "+", must be attached to the big red wire which goes to the solenoid.
	Battery is dead or weak	Check fluid level in battery. If it is low, fill to just below split rings with water. Charge with 6 AMP charger until fully charged.
	Brown fuse or circuit breaker	Replace fuse with 7-1/2 amp. automotive type fuse. Fuses seldom fail without a reason. The problem must be corrected. Check for loose connections in the fuse holder. Replace fuse holder if necessary. A dead short may be in the cranking or charging circuit where the insulation may have rubbed through and exposed the bare wire. Replace the wire or repair with electrician's tape if the wire strands have not been damaged.  Note: Look for a wire pinched between body panels, burned by the exhaust pipe or muffler or rubbed against a moving part.
Engine cranks but will not start	Engine ground wire loose	Engine should have a black ground wire running from engine to frame or mounting bolt.
	Throttle or choke not in starting position	Check owner's guide for correct position for throttle control and choke for starting.
	No spark to spark plug	Spark plug lead disconnected. Connect lead. Hold spark plug lead away from engine block about 1/8". Crank engine. There should be a spark. If not, have engine repaired at authorized engine service dealer.  Faulty spark plug. To test, remove spark plug. Attach spark plug lead to spark plug. Ground the spark plug body against the engine block. Crank the engine. The spark plug should fire at the electrode. Replace if it does not.
	No fuel in the carburetor	Gasoline tank empty. Fill.  Fuel line or in-line fuel filter plugged. Remove and clean fuel line. Replace filter if necessary.
	Air filter dirty	If the air cleaner is dirty, the engine may not start. Clean or replace as recommended by the engine manufacturer.
Engine smokes	Engine loses crankcase vacuum	Dipstick not seated or broken. Replace defective part.  Engine breather defective. Replace.
Excessive vibration	Bent or damaged blade spindle	Stop engine immediately. Check all pulleys, blade adapters, keys and bolts for tightness and damage. Tighten or replace any damaged parts.
	Bent blade	Stop engine immediately. Replace damaged blade. Only use original equipment blades.
Mower will not discharge grass or leaves uncut strips	Engine speed low	Use lower ground speed. The slower your ground speed, the better quality of cut.
	Throttle must be set on full throttle. Speed selection	Blades too short or dull  Sharpen or replace blades (uncut strip problem only).

If the above steps fail to correct the problem, take the unit to your local authorized service dealer for repair.

# 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 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDGING 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.