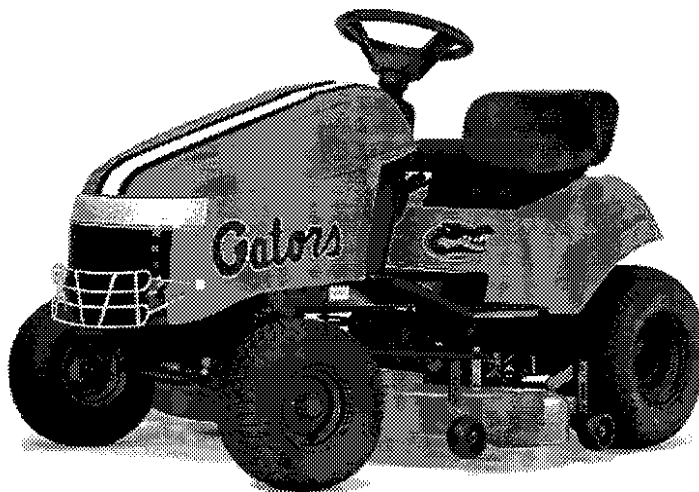




# OPERATOR'S MANUAL



## Regent Sport Series

### **14HP** Hydro Tractor

Mfg. No.	Description
1693264	Regent, Florida Gator 14HP Hydro

### 38" Mower Decks

Mfg. No.	Description
1693266	38" Mower Deck

1718802

Rev 8/97  
TP-100-2079-01-RG-S-6

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*NOTE: In this manual, "left" and "right" are referred to as seen from the operating position.*

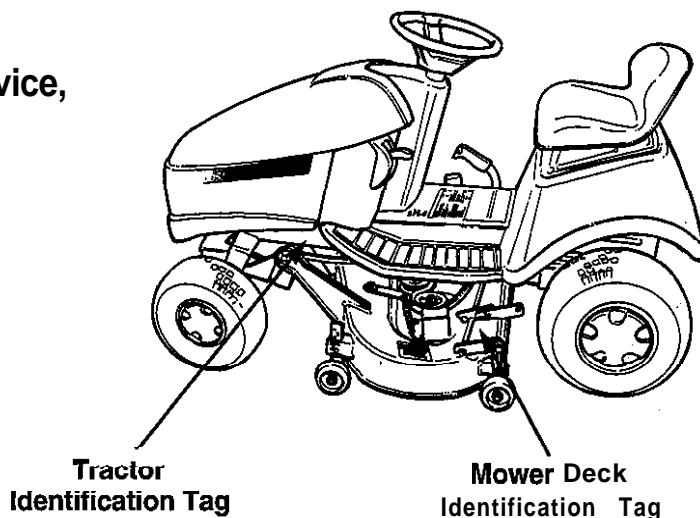
## WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

# Identification Numbers \_\_\_\_\_

## TRACTOR & MOWER IDENTIFICATION TAG LOCATIONS

When contacting your Authorized Dealer for replacement parts, service, or information **YOU MUST HAVE THESE NUMBERS.**



## IDENTIFICATION NUMBERS

Record your model name/number, tractor and mower deck manufacturer numbers and engine serial number in the space provided for easy reference.

- The **Tractor I.D. tag** is located on the left-side, of the frame, as shown below.
- The Mower **Deck I.D. tag** is also on the left side, on top of the mower deck.
- For location of **Engine Serial Number**, refer to the Engine Owner's Manual.


Be sure to fill out and return the Warranty Registration Card supplied with your tractor.

### PRODUCT REFERENCE DATA

Model Description Name/Number	
Tractor MFG Number	Tractor SERIAL Number
Mower Deck MFG Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased

### ENGINE REFERENCE DATA

Engine Make/Model	Engine ID/Serial Number
-------------------	-------------------------

**A** Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment. **This mowing deck is capable of amputating hands and feet and throwing objects.** The triangle  in text signifies important cautions or warnings which must be followed.

## GENERAL OPERATION

- Read, understand, and follow all instructions in the manual and on the unit before starting.
- Only allow responsible adults, who are familiar with the instructions, to operate the unit.
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
- Be sure the area is clear of other people before mowing. Stop unit if anyone enters the area.
- Never carry passengers.
- Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
- Be aware of the mower discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the deflector in place.
- Slow down before turning.
- Never leave a running unit unattended. Always disengage the PTO, set parking brake, stop engine, and remove keys before dismounting.
- Turn off the PTO switch to disengage the blades when not mowing.
- Stop engine before removing grass catcher or unclogging chute.
- Mow only in daylight or good artificial light.
- Do not operate the unit while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.

## 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.

### **A WARNING ■ SLOPE OPERATION**

Never operate on slopes greater than 30 percent (16.7") which is a rise of three feet vertically in 10 feet horizontally. When operating on slopes that are greater than 15 percent (6.5") but less than 30 percent use front counterweights and rear wheel weights (see your dealer). Select slow ground speed before driving onto slope. In addition to front and rear weights, use extra caution when operating on slopes with rear-mounted grass catcher. Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

### Do

- See your authorized dealer for recommendations of wheel weights or counterweights to improve stability.
- Mow up and down slopes, not across.
- Remove obstacles such as rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
- Use slow speed. Choose a low gear so that you will not have to stop or shift while on the slope.
- Use extra care with grass catchers or other attachments. These can change the stability of the unit.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.

### Do Not

- Do not start or stop on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
- Do *not* turn on slopes unless necessary, and 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 or ditch, or if an edge caves in.
- Do *not* mow on wet grass. Reduced traction could cause sliding.
- Do not try to stabilize the unit by putting *your foot on* the ground.
- Do not use grass catcher on steep slopes.

# Safety Rules

## CHILDREN

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

- Keep children out of the mowing area and under the watchful care of another responsible adult.
- Be **alert** and turn unit off if children enter the area.
- Before and during reverse operation, look behind and down for small children.
- Never carry children. They may fall off and be seriously injured or interfere with safe unit operation.
- Never allow children to operate the unit.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

## TRANSPORTING AND STORAGE



### WARNING

**When transporting this tractor on an open trailer, make sure unit is facing forward, toward the direction of travel. If tractor is facing backward, wind lift could cause damage to the hood.**

- Always observe safe refueling and fuel handling practices when refueling the tractor after transportation or storage.
- Always follow the engine manual instructions for storage preparations before storing the tractor for both short and long term periods.
- Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
- Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

## SERVICE AND MAINTENANCE

- Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
  - a) Use only an approved container.
  - b) Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling. Do not smoke.
  - c) Never refuel the unit indoors.
- Never run a unit in an enclosed area.
- Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
- Never tamper with safety devices. Check their proper operation regularly.
- Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage.
- Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
- Never make adjustments or repairs with the engine running unless specified otherwise in the engine manufacturer's manual.
- Grass catcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Check brake operation frequently. Adjust and service as required.
- Use only factory authorized replacement parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.



### WARNING

**Never place hands near the hydro pump cooling fan when the tractor is running. Cooling fan is located on top of transaxle on hydro models.**

## GENERAL

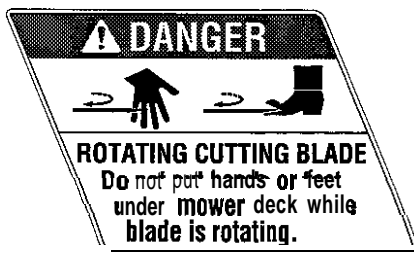
This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your tractor.

All WARNING, CAUTION and instructional messages on your tractor and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your tractor and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.



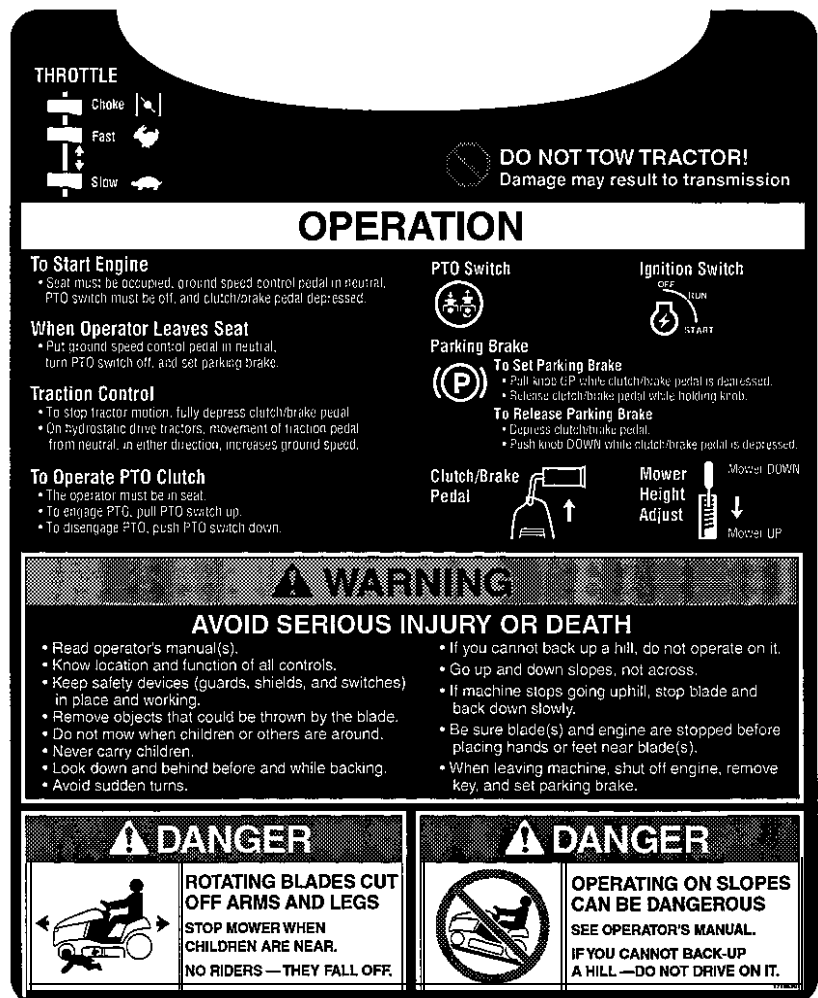
Decal - Danger  
Part No. 1704276



Decal - Danger  
Part No. 1704277



Decal - Hydro Release Valve  
Part No. 1717460



Decal - Operating Instructions  
Part No. 1716530

# Features & Controls

## CONTROLS - HYDRO MODEL

- A. Steering Wheel
- B. Throttle
- C. Parking Brake Knob
- D. Ignition Key/Switch
- E. Headlight Switch
- F. PTO (Electric Clutch) Switch
- G. Mower Height Adjustment Lever
- H. Brake Pedal
- I. Forward Direction Pedal
- J. Rear Direction Pedal

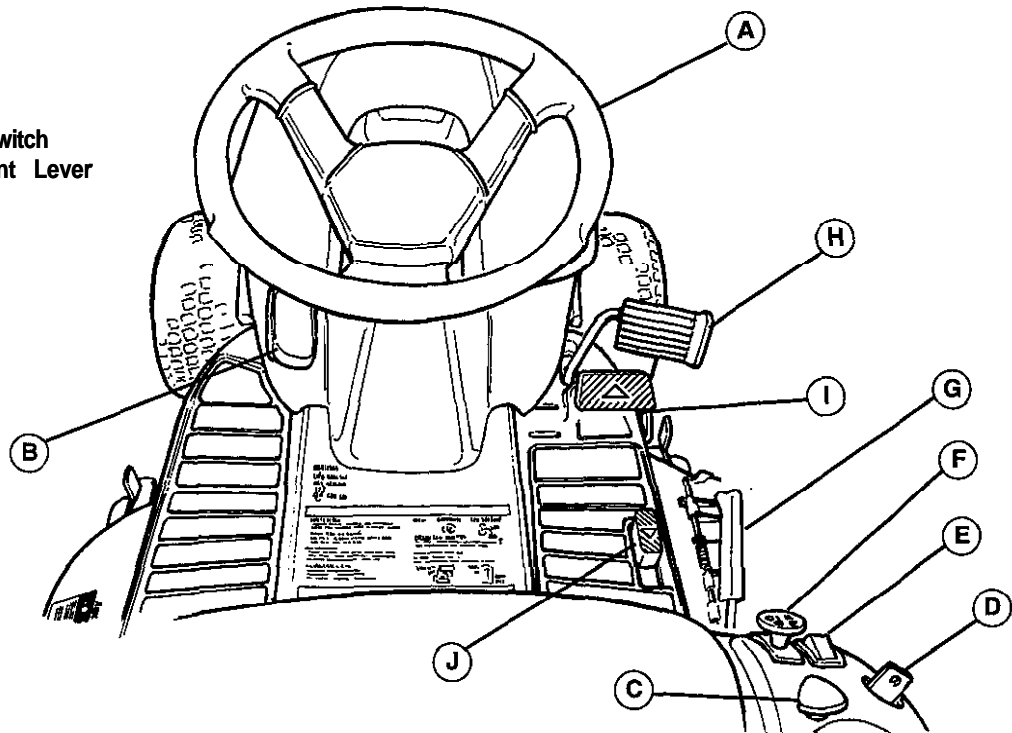


Figure 1. Tractor & Mower Controls - Hydro Model

## CONTROLS - GEAR MODEL

- A. Steering Wheel
- B. Throttle
- C. Parking Brake Knob
- D. Ignition Key/Switch
- E. Headlight Switch
- F. PTO (Electric Clutch) Switch
- G. Mower Height Adjustment Lever
- H. Clutch/Brake Pedal
- I. Gear Selector

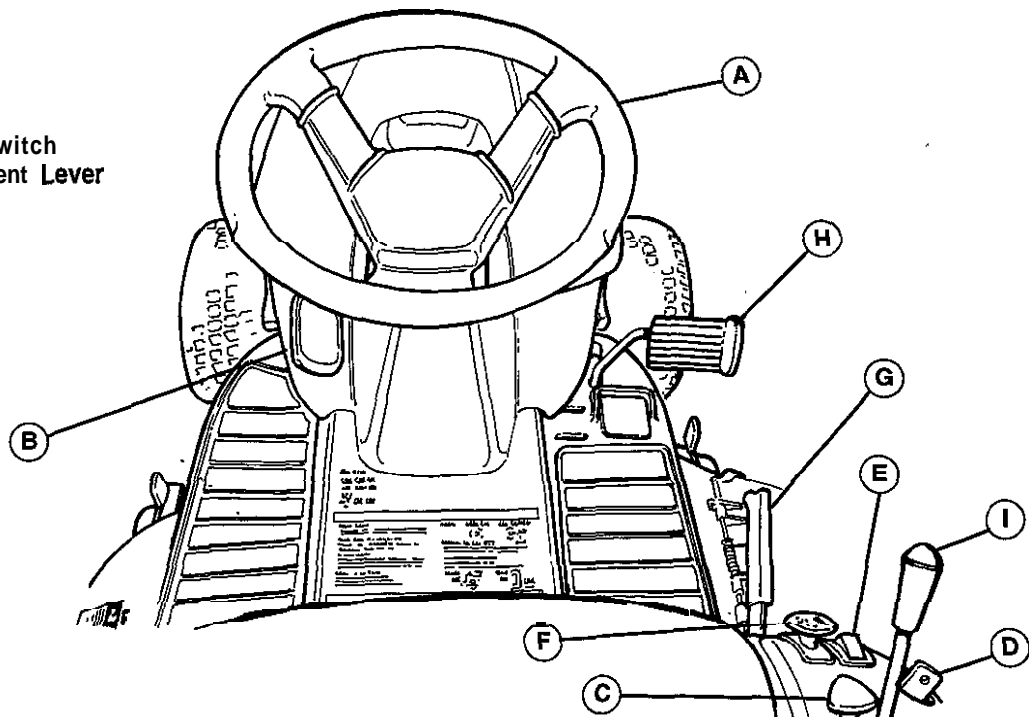


Figure 2. Tractor & Mower Controls - Gear Model

## GENERAL

Before first time operation, drive in an open area without mowing, to become accustomed to the unit. Be **sure** to read all information in the Safety and Operation sections before attempting to operate this tractor and mower.

### **A** WARNING

Never allow passengers to ride on the unit.

To reduce fire hazard, keep the engine and mower free of grass, leaves and excess grease.

The interlock safety switches are for your safety. Do not attempt to bypass them.

### **A** WARNING - SLOPE OPERATION

Never operate on slopes greater than 30 percent (16.7") which is a rise of three feet vertically in 10 feet horizontally. When operating on slopes that are greater than 15 percent (5.5") but less than 30 percent use front counterweights and rear wheel weights (see your dealer). Select slow ground speed before driving onto slope. In addition to front and rear weights, use extra caution when operating on slopes with rear-mounted grass catcher. Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.



### DO NOT TOW TRACTOR

Towing the tractor will cause transmission damage. Do not use another vehicle to push or pull tractor.

## SAFETY INTERLOCK SYSTEM

Your tractor is equipped with a seat switch safety system. Check the seat switch operation every fall and spring with the following three tests.

**Test 1 - Engine should NOT crank if any of the following conditions exist:**

- Transmission is out of neutral.
- PTO switch is engaged.
- Clutch/brake pedal is not fully depressed.

**Test 2 - Engine should crank if ALL of the following conditions are met:**

- Transmission is in neutral.
- PTO switch is disengaged.
- Clutch/brake pedal is fully depressed.

**Test 3 - Engine should shut off if any of the following conditions exist:**

- Operator rises off seat with transmission in gear and the clutch/brake pedal not fully depressed, and/or the parking brake is not set.
- Operator rises off seat with clutch/brake pedal not depressed;
- Operator rises off seat with PTO engaged,

*NOTE: Once the engine has stopped, the PTO Switch (F, Figures 1 & 2) must be turned off after operator returns to the seat in order to start the engine.*

### **A** WARNING

If the tractor does not pass the test, do not operate tractor. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety system.



# Operation

## CHECKS BEFORE STARTING

1. Make sure you have proper wheel or counterweights installed if required. See Slope Operation in the Safety Rules section. Make sure any slopes are within required limits.
2. Check that crankcase is filled to full mark on dipstick. See the engine Operator's Manual for instructions and oil recommendations.
3. Make sure all nuts, bolts, screws and pins are in place and tight.
4. Make sure you can reach all controls from operator's positions. If not, see SEAT ADJUSTMENT.
5. Fill the gasoline tank with fresh gasoline. Fill to bottom of filler neck to avoid spillage and overflow. DO NOT mix oil with gasoline. Refer to engine manual for gasoline recommendations.

### **A WARNING**

**Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid overfilling and wipe up any spills.**

## CLUTCH/BRAKE PEDAL OPERATION

**On gear model**, depressing the pedal (H, Figure 2) halfway disengages the transmission drive. Depressing pedal further applies the tractor brake.

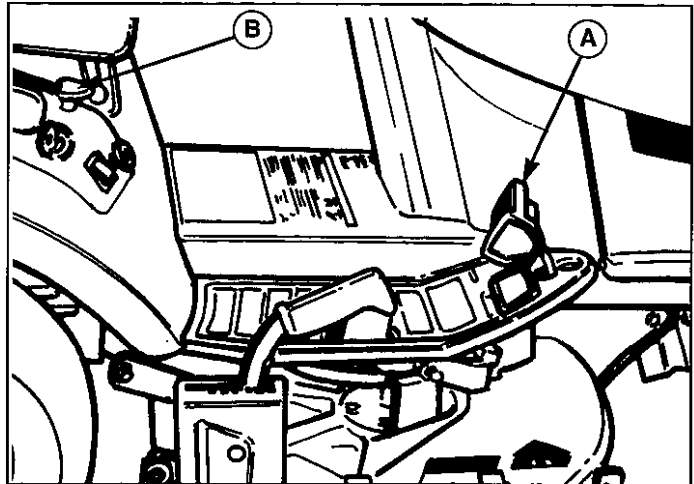
**On hydro model**, depressing the pedal applies the tractor brake.

## PARKING BRAKE

Parking brake can be applied by fully depressing the brake pedal (H, Figures 1 & 2), then pulling up on the parking brake knob (C, Figures 1 & 2).

## STARTING THE ENGINE

1. While sitting in the operator seat, set the parking brake.
2. Set the throttle (B, Figures 1 & 2) all the way up to CHOKE. A warm engine may not require choking.
3. Disengage the PTO by pushing the switch all the way down (F, Figures 1 & 2)
4. **On hydro models**, with your foot off the pedals (I & J, Figure 1) the tractor is in the neutral position.  
**On gear models**, put the gear selector (I, Figure 2) in neutral.
5. Insert the key into the ignition switch (D, Figure 1 & 2) and turn it to START.



**Figure 3. Clutch/Brake Pedal Operation**

- A. Clutch/Brake Pedal - Gear Model  
Brake Pedal - Hydro Model  
B. Parking Brake Knob

6. Move the throttle (B, Figures 1 & 2) to SLOW. Warm up the engine by running it for at least a minute before engaging the PTO switch or driving the tractor

## DRIVING THE TRACTOR

### **A WARNING**

**Make sure desired direction of travel is clear of objects, people and animals.**

**On hydro model**, ground speed is infinitely variable according to how far the pedals (I & J, Figure 1) are moved in the forward or reverse position.

**On gear model**, ground speed is selected by fully depressing the clutch/brake pedal, then moving the gear selector (I, Figure 2) to the appropriate position. Most mowing is done in 3rd gear with engine speed at full throttle. If the terrain is rough, hilly, or sloping, use first or second gear. If the grass is wet or over three inches (76mm) high, use full engine speed with low gear so the mower will have enough power to cut the grass. Shift gears only with tractor stopped and clutch/brake pedal fully depressed.

1. If you are ready to mow, set the mower to the desired cutting height (see Adjusting Mower Cutting Height) and adjust the seat so that the controls can be easily reached (see Seat Adjustment).
2. Set the throttle (B, Figures 1 & 2) for desired speed. Full speed is recommended for mowing.
3. Engage the mower PTO by pulling up on the switch (F, Figures 1 & 2).

4. On **hydro model**, release the parking brake by depressing the brake pedal (H, Figure 1), then press down on either pedal (I or J, Figure 1) for the desired direction and speed of travel.

On **gear model**, fully depress clutch/brake pedal (H, Figure 2) to release the parking brake and disengage the clutch. Use the gear selector (I, Figure 2) to select the gear best suited for conditions, then slowly release clutch/brake pedal to engage clutch and start tractor in motion.

## STOPPING THE TRACTOR

1. On **hydro model**, gradually take your foot off the pedals (I & J, Figure 1) to make a smooth stop. To make a more rapid stop, depress the brake pedal (H, Figure 1).

On **gear model**, press the clutch/brake pedal (H, Figure 2) down only far enough to disengage the clutch to make a gradual stop. For a more rapid stop, press pedal down fully to apply the brake.

2. Engage the parking brake by pulling up on the knob (C, Figure 1 & 2) with the brake pedal fully depressed.
3. Disengage the PTO by pushing down on the switch (F, Figures 1 & 2).
4. Set engine throttle control to mid-throttle position and turn the ignition key to off. Remove the key.

**NOTE:** Stopping the engine at any speed other than mid-throttle can cause engine damage. Do not stop the engine with the throttle control in the IDLE position.

### WARNING

Before leaving the operator's position for any reason, engage the parking brake, disengage the PTO, stop the engine and remove the key.

### WARNING

To reduce fire hazard, keep the engine, tractor and mower free of grass, leaves and excess grease. Do not stop or park tractor over dry leaves, grass or combustible materials.

## PUSHING THE TRACTOR BY HAND



### DO NOT TOW TRACTOR

Towing the tractor will cause transmission damage. Do not use another vehicle to push or pull tractor.

## Hydro Models

1. With engine off and key removed, disengage the PTO by pushing the switch (F, Figures 1 & 2) all the way down.
2. See Figure 4. The release lever is located on the rear of the tractor. To release the transmission pull the lever up, back and then down to lock. **DO NOT ACTIVATE WHILE ENGINE IS RUNNING.**

**Note:** To drive the tractor the release lever must be moved completely forward and pushed down into locked position to engage the transmission.

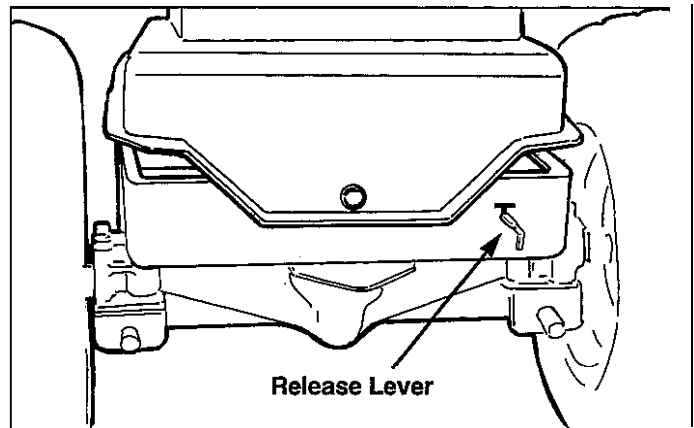


Figure 4. Release Lever - Hydro Models

## Gear Models

1. With engine off and key removed, disengage the PTO by pushing the switch (F, Figures 1 & 2) all the way down.
2. Place the gear selector in the NEUTRAL position.
3. Unlock parking brake.

## MOWER INSTALLATION & REMOVAL

### **A** WARNING

Engage parking brake, disengage PTO, stop engine and remove key before attempting to install or remove the mower.

**NOTE:** Perform mower removal and installation on a hard, level surface such as a concrete floor.

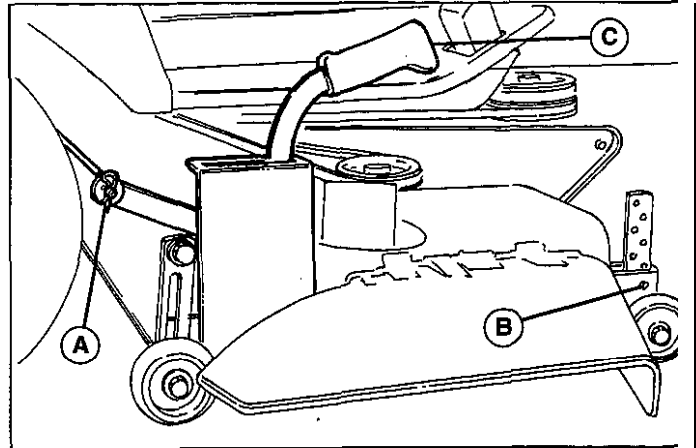
1. Turn the front wheels of the tractor full left.
2. Place the mower in lowest cutting position.
3. Move lever (C, Figure 6) to release belt tension, then slide belt off of PTO pulley.
4. Remove clip (A, Figure 5) from right side of rod. Pull rod (A, Figure 6) out from left side.
5. Disconnect the front hitch by pulling out on the release rod (A, Figure 7) and lifting the mower hitch off the tractor hitch. Slide the mower deck out from under the right side of the tractor.
6. Install the mower in reverse order of removal.

**NOTE:** When installing rod (A, Figure 6), turning the front wheels slightly left or right helps to align the holes.

### ADJUSTING MOWER CUTTING HEIGHT & GAUGE WHEELS

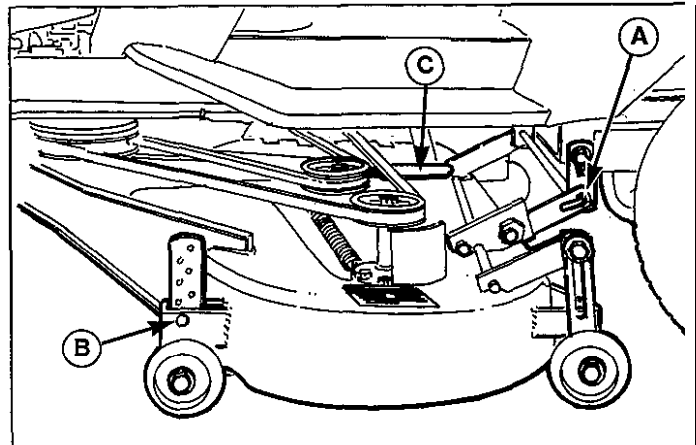
**NOTE:** Perform adjustment on a hard, level surface such as a concrete floor.

1. Set the mower height adjustment lever (A, Figure 8) to the desired cutting height.
2. Remove the pin & clip (B, Figure 8) from each mower deck front gauge wheel.
3. Adjust the gauge wheels to achieve the appropriate mower deck-to-ground clearance, as shown in Figure 8. Reinstall pin & clip to each wheel.



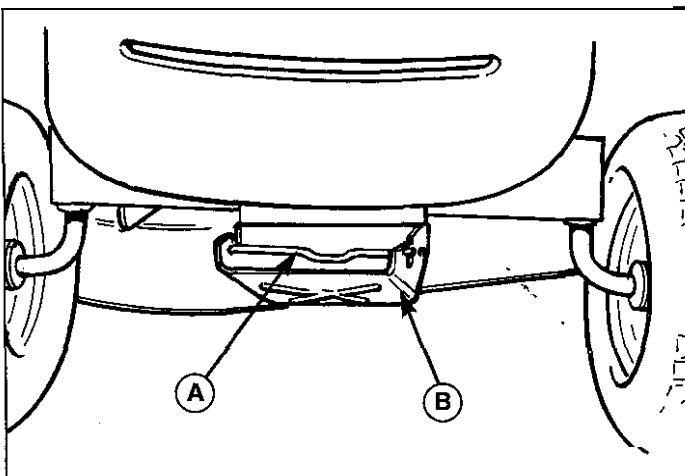
**Figure 5. Mower Deck - Right Side**

- A. Clip  
B. Pin & Clip  
C. Height Adjustment Lever



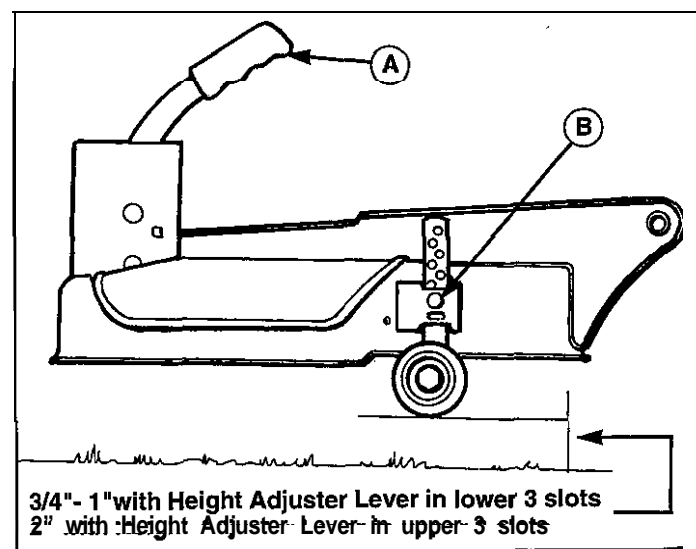
**Figure 6. Mower Deck - Left Side (38" Deck Shown)**

- A. Rod  
B. Pin & Clip  
C. Lever



**Figure 7. Front Hitch**

- A. Release Rod  
B. Hitch



**Figure 8. Adjusting Mower Deck Gauge Wheels**

- A. Mower Height Adjustment Lever  
B. Pin & Clip

## GENERAL

For the first use of the mower, choose a smooth level area. Cut long straight strips overlapping slightly.

The size and type of area to be mowed determines the best mowing pattern to use. Obstructions such as trees, fences and buildings must also be considered. Where possible, make one or two passes in a counterclockwise direction around the outside of the area to keep the cut grass off fences and walks. The remainder of the mowing should be done in a clockwise direction so the clippings are dispersed on the cut area.

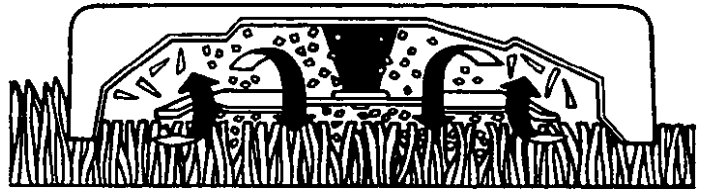
Keep in mind the following lawn care and mowing tips:

- Too much maintenance is as detrimental to your lawn as neglect.
- Mow when grass is 3-5 inches tall. Don't cut shorter than 2 to 2-1/2 inches. Cut only the top one-third of the grass blade. Cutting below this level can lead to thatch problems. Your mower has a cutting height adjustment that can help you maintain a proper length.
- For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.
- Mow often. Short clippings of an inch or less decompose more quickly than longer blades.
- Keep the blades on your mower sharp for finer clippings.
- Let grass grow a bit longer when it is hot to reduce heat build-up and protect grass from heat damage.
- Use slow-release fertilizer for slow, even growth.
- Don't cover grass surface with a heavy layer of clippings. Consider using a grass collection system and starting a compost pile.
- Aerate lawn in spring, consider renting an aerator which removes cores of soil from the lawn. This increases the speed of clipping decomposition and deep root growth by opening up the soil and permitting greater movement of water, fertilizer and air.
- Don't over-water. Too much water can encourage disease development.
- Mow when the grass is dry, preferably in the late afternoon when the temperatures are cooler.
- Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
- For wet grasses, grasses prone to wheel tracking and for collecting clippings:
  - a. Use sharp blades.
  - b. Adjust deck 1/4" higher in front than in rear.
  - c. Run at maximum engine speed but slow ground speed.
  - d. Clean deck of built-up material/caked-on grass.
  - e. Check for free movement of mower idler pulley.
- For dry conditions where grass blow-out is a problem:
  - a. Use sharp blades.
  - b. Adjust deck flat to 1/8" maximum lower in front.
  - c. Use 3/4 engine speed.
  - d. Clean deck of built-up material/caked-on grass.

## MULCHING MOWER OPERATION (OPTIONAL KIT ATTACHMENT)

### Mulching

Mulching consists of actually cutting and recutting clippings into tiny panicles and blowing them into the lawn. These tiny particles decompose rapidly into by-products your lawn can use. Under proper conditions, your mulching mower will virtually eliminate noticeable clippings on the lawn surface.



Keep in mind these mulching tips:

- Use mulching mower or mulcher kit without shredders for grass mulching.
- Install shredders for leaf shredding.
- Use maximum engine speed.
- Raise height of cut if excessive power is used.
- Must use sharp blades. Do not use lift tabs or high lift blade when mulching.
- Adjust to lower ground speeds in heavy grass or if wind rowing is present.
- Clean deck of built-up material/caked-on grass.
- Check for free movement of mower idler pulley.

### Mowing Conditions

The best mulching results from mowing when lawn is dry and grass blades are not over 5" long. Follow these guidelines for best results:

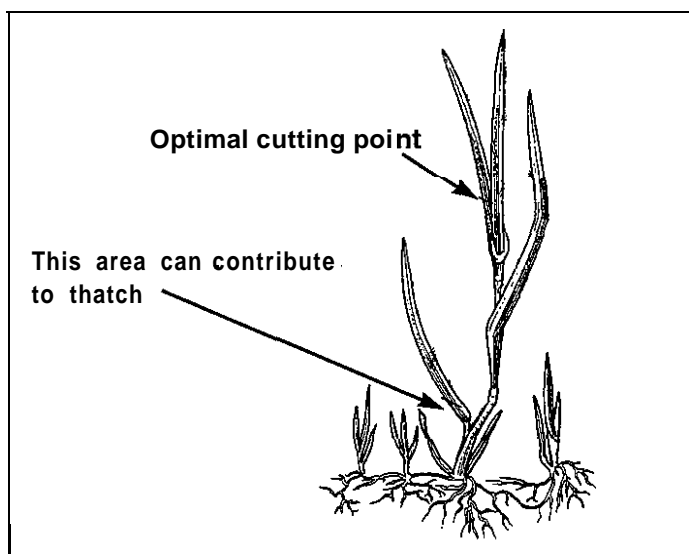
- Do not use the mower as a mulching mower during the first two or three mowings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for side-discharge (broadcasting) or grass bagging operation.
- Avoid mulching after rain or heavy dew. It may be better to mow later in the day or early evening when lawn is drier.

# Mowing Patterns & lips

- Change the mowing pattern each time.
- If mulching baffles are removed, the original deflector must be in operating position for safe side-discharge mowing.

## How Much Grass To Cut Off

Removing too much grass height in one cutting may result in an unsatisfactory cut: wind rowing, clumping, or uneven dispersal of clippings may result. It is best to mow when the grass is between 3"- 5" tall, although this will depend on your personal preference for lawn appearance. A good rule to follow is to cut only the top **one-third** of the grass blade at a time (maximum of 1-1/2"). Cutting more off the grass blade, particularly in wet spring conditions, can lead to thatch problems.



## Engine Speed & Ground Speed

Use full engine throttle matched with a slower ground speed so that clippings will be finely cut. A better cut may result from cutting the same area in two passes, each time cutting only 3/4" of grass blade. **Short** clippings of 1" or less decompose more quickly than longer blades.

*NOTE: When mulching under heavy cutting conditions, a rumbling sound may be present and is normal.*

## The Proper Equipment

Always keep the mower blades sharp and balanced. Blades should be sharpened at the beginning of every mowing season. If the tips of grass blades brown after cutting, this may be a sign of dull blades tearing, rather than cutting, the grass blades.

Keep the underside of the mower deck and baffles clean so that clippings are properly circulated, chopped, and discharged back into the lawn.

## The Best Combination

We recommend that you experiment with the height of cut position and tractor ground speed that will give you the best cut. **Start** with a higher cutting height and try increasing lower settings until you find a cutting height that is matched to your mowing conditions and preferences. Since mulching requires more horsepower than side-discharging, using a slower ground speed is important for proper mulching operation.

## Clippings Are Beneficial

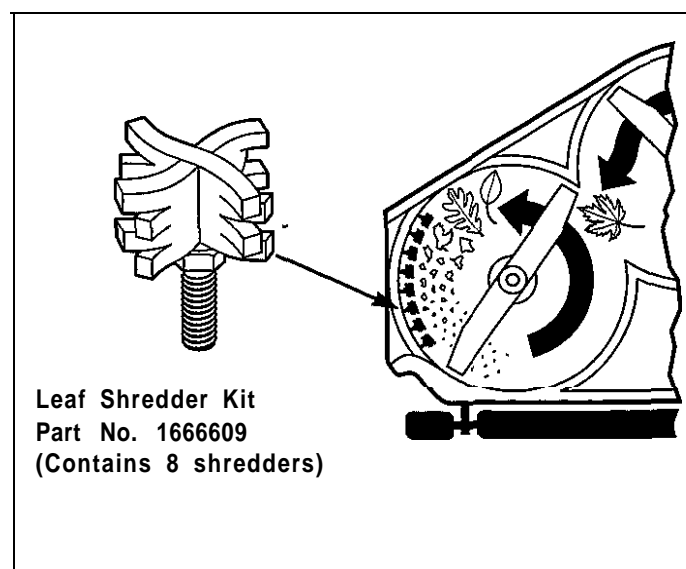
A common misconception about clippings is that they automatically lead to thatch. However, clippings produced by mulching methods actually contribute to a healthy lawn because they:

- Act as a safe, non-polluting and inexpensive fertilizer that nourishes your lawn. Fresh cut blades are a rich source of nitrogen which is essential to lush growth. And one garbage bag of clippings contains about 1/4 lb. of usable organic nitrogen.
- Reduce the evaporation of water from your lawn.
- Provide a cushioning layer to reduce lawn wear.
- Moderate soil temperature.
- Save money normally spent on trash bags.

## Leaf Shredding

### (For use with Mulcher Kit Only)

Patented Shredder Blades virtually eliminate raking leaves. Up to 512 cutting edges pulverize leaves into tiny panicles, which quickly and naturally decompose into food for your lawn. Shredder Blades must be removed when you choose to mulch grass clippings.



## MAINTENANCE SCHEDULE

The following schedule should be followed for normal care of your tractor and mower. You will need to keep a record of your operating time. Determining operating time is easily accomplished by multiplying the time it takes to do one job by the number of times you've done the job, or you can install the optional hour meter.

Safety items	See Page	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
Check safety interlock system.	7	.					.
Check tractor brakes.	24	.					•
Check mower blade brake.	27	.				•	
<b>Normal Care Items</b>							
Check tractor/ mower for loose hardware.	—	.	•	•			
Check engine oil level.	*	.					.
Check engine air filter.	*				***•		
Change engine oil and filter. **	*				**Every 50 hrs.		***•
Lubricate tractor & mower.	15				***•		
Check tire pressure	13	•	•		**•		
Change transmission fluid. (Hydro only) ****	16		After the first 50 hours, then every 250 hours				
Check fuel filter.	14					•	
Clean battery&cables	17					.	
Clean/sharpen blades.	16				.		
Inspect or replace spark plug(s).	*					.	
Check belt tension.	*					.	

\* See the engine manufacturer's owner's manual.

\*\* Change original engine oil after first 5 hours of operation.

\*\*\* More often in hot (over 85° F; 30° C) weather or dusty operating conditions.

\*\*\*\* Change the transmission oil after the first 50 hours, then every 250 hours. Use SAE 10W-30 with a minimum API rating of CD.

## TIRE PRESSURE

Tire pressure should be checked periodically, and maintained at the levels shown in the chart at right. Note that these pressures differ slightly from the "Max Inflation" stamped on the side-wall of the tires. The pressures shown in the chart provide proper traction, improved cut quality, and extended tire life.

Tire	Pressure
Front	12 - 15 psi (82 - 103 kPa)
Rear	10 - 12 psi (56 - 82 kPa)

## RAISING THE HOOD & SEAT

1. To raise the hood, grasp the hood recess (Figure 9) on top, then pivot the hood up and forward.
2. To raise the seat for battery access, tilt the seat forward.

### CAUTION

Do not run the engine with the hood raised. Engine heat will cause damage to the headlight bezel and hood.

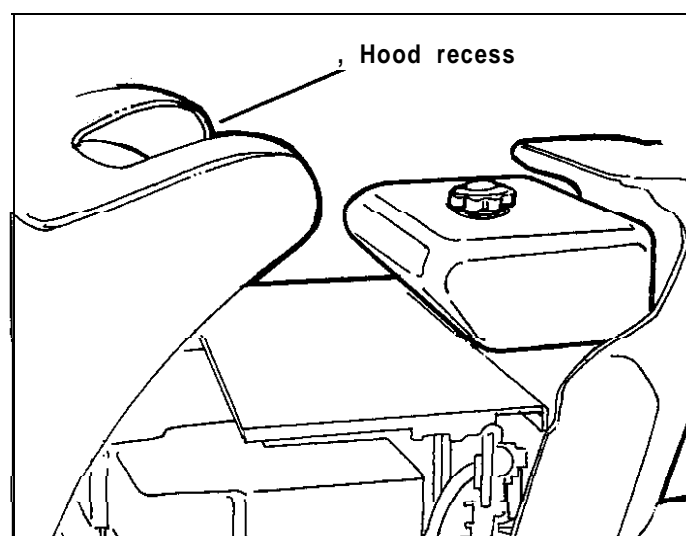


Figure 9. Gas Tank Located Under Hood

### CHECKING AND ADDING GASOLINE

Raise the hood and check the fuel tank to be sure there is enough gasoline to complete the job. To add gasoline, remove the gas cap. Do not overfill. Leave room in the tank for fuel expansion. Refer to your engine manual for gasoline recommendations. Install and hand tighten the gas cap.

#### **A CAUTION**

Never use gasoline containing METHANOL, gasoline containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.

### CHECKING FUEL FILTER

The fuel filter (C, Figure 10) is located in fuel line between fuel tank and carburetor. If filter is dirty or clogged, replace as follows. Place a container below filter to catch spilled gasoline.

1. Using a pliers, open and slide hose clamps from fuel filter.
2. Remove hoses from filter.
3. Install new filter in proper flow direction in fuel line. Secure with hose clamps. See warning at beginning of procedure.

#### **A WARNING**

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. DO NOT spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.

### OIL & FILTER CHANGE

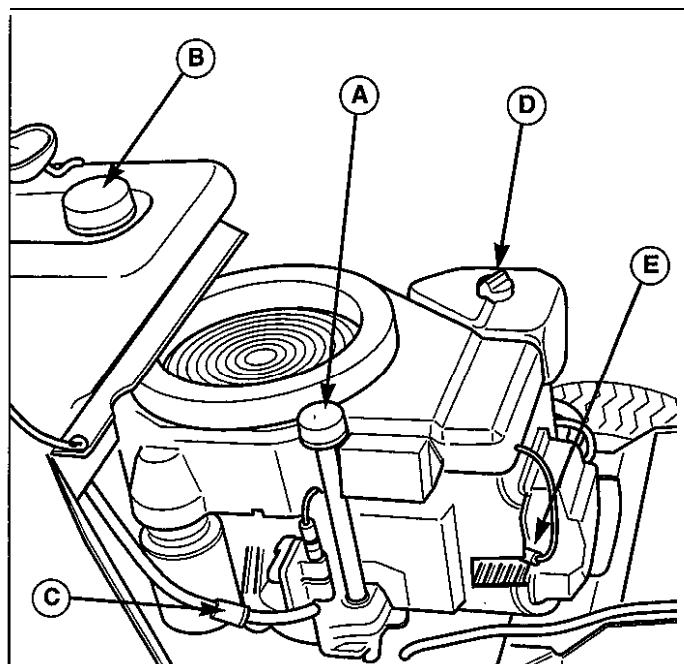
Refer to engine manual for specific oil and filter recommendations and oil draining procedures. Both the oil filter and oil drain valve are located on the left side of the engine. To open the drain valve turn the fitting counter clockwise with a 10 mm wrench.

### CHECK / CHANGE AIR FILTER

Refer to the engine manual for specific air filter service procedures. Refer to Figure 10 for air filter location.

### REPLACE SPARK PLUG

Refer to the engine manual for specific spark plug replacement procedures. Refer to Figure 10 for spark plug location.



**Figure 10. Engine Compartment**

- |                |               |
|----------------|---------------|
| A. Oil Fill    | D. Air Filter |
| B. Gas Tank    | E. Spark Plug |
| C. Fuel Filter |               |

## LUBRICATION

Lubricate the tractor at the locations shown in Figures 11 through 16 as well as the following lubrication points.

Grease:

- steering linkage
- rear axle shafts
- front wheel bushings
- mower pivots
- mower arbors
- foot pedal (hydro only)

Oil:

- front axle assembly
- rear frame assembly pivot
- seat adjustment assembly
- mower deck height adjustment linkage
- shift linkage
- hydro linkage
- brake linkage

Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Remember to wipe fittings and surfaces clean both before and after lubrication.

Not all greases are compatible. Simplicity "Jiffy Lube" Lithium Grease is recommended, automotive-type lithium grease may be used when this is not available.

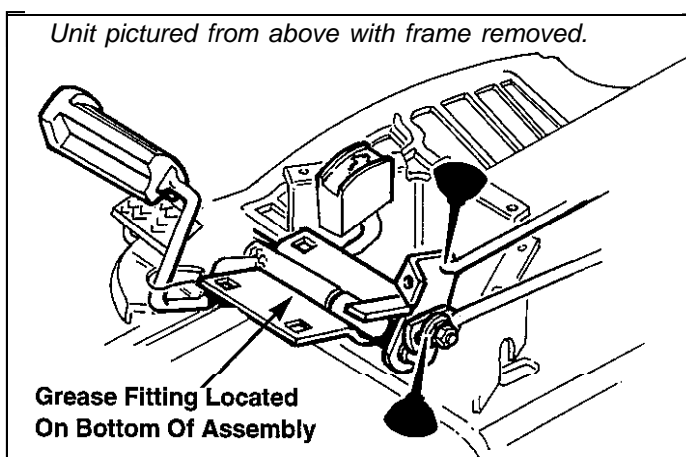


Figure 11. Brake/Hydro Linkage Lubrication

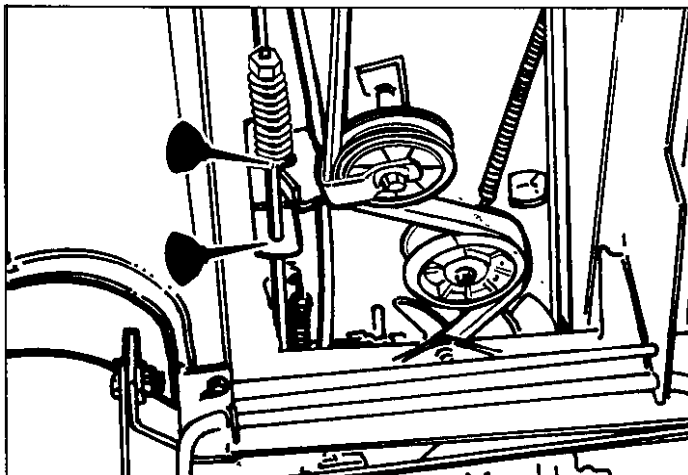


Figure 12. Brake Linkage Lubrication-Gear Models

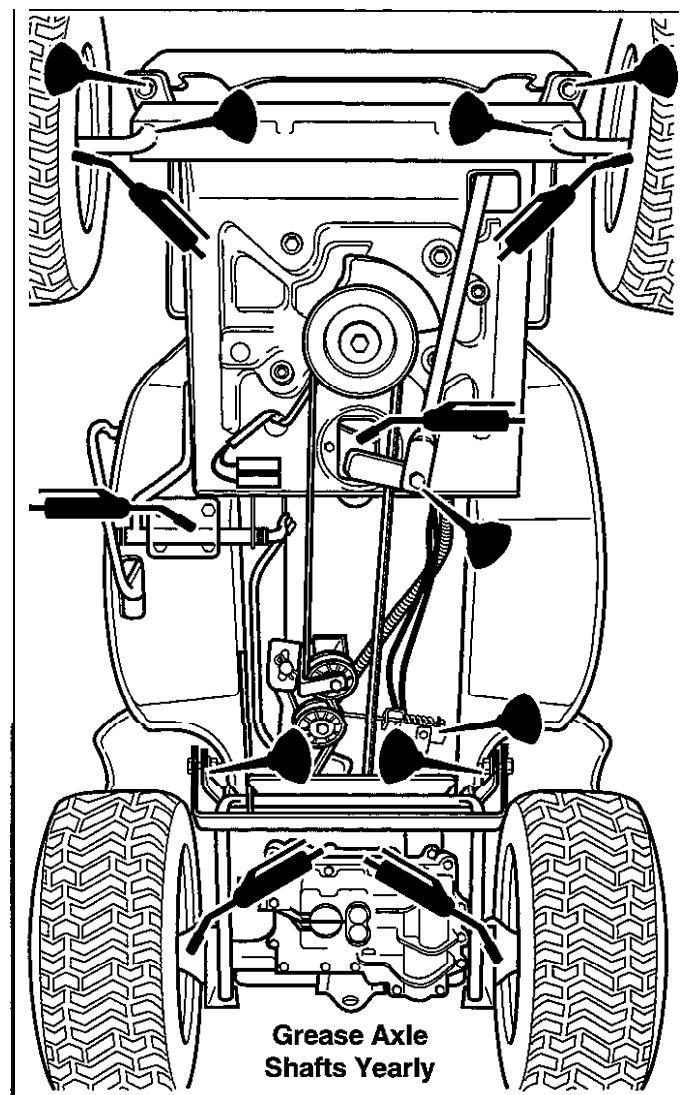


Figure 13. Lubricating Tractor-Typical

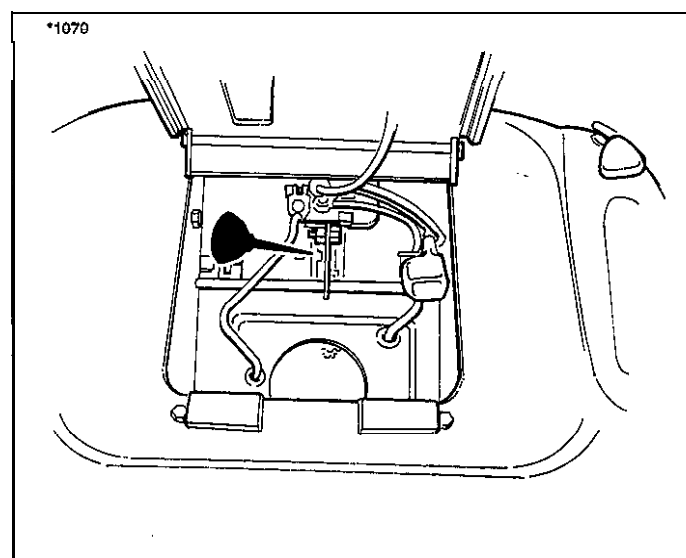


Figure 14. Shift Linkage Lubrication (Gear Model)



## Normal Care

### Lubrication (Continued).

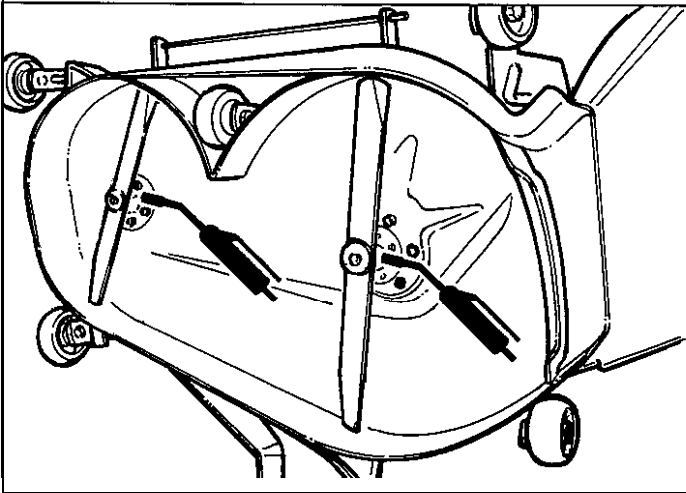


Figure 15. Lubricating Mower Deck (36" shown)

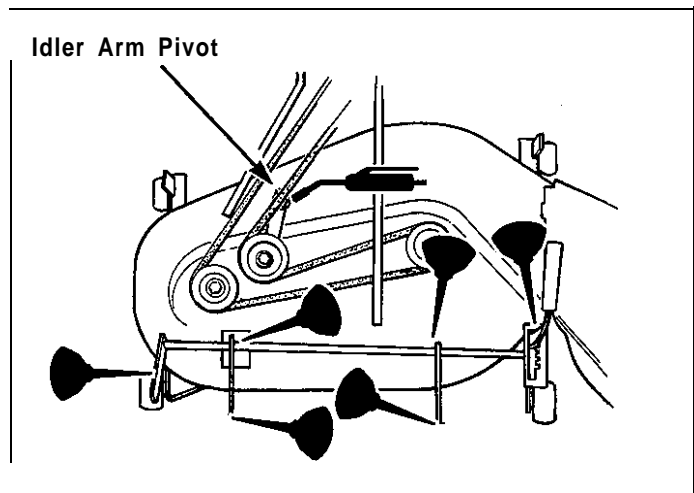


Figure 16. Lubricate Deck Linkage (36" shown)

## LUBRICATE THE AXLE SHAFTS

We recommend removing the rear wheels and lubricating the axle shafts yearly. This prevents the wheel from seizing onto the axle shaft, making future service easier.

1. Remove the key and disconnect the spark plug wire while working on the unit.
2. Engage the parking brake and block the front wheels.
3. Using a jack or chain hoist positioned at the center of the rear frame, carefully jack the unit up until the rear tires are approximately 1" - 2" off the ground.

**NOTE:** For overall unit stability during service, do not jack rear end higher than required for wheel removal.

4. Support the rear of the unit on jackstands positioned under the rear frame (see Figure 17).
5. Remove the plastic hub cap/axle cap.
6. Remove e-ring using a screwdriver (see Figure 18).
7. Remove the washers and wheel assembly.
8. Lubricate the axle shaft with anti-seize compound.
9. Reinstall components in reverse order of disassembly and lower the unit.

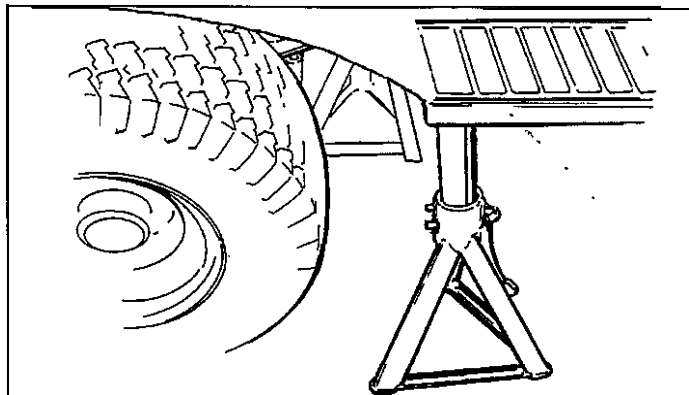


Figure 17. Supporting the Tractor

## **A** WARNING PREVENT SERIOUS INJURY OR DEATH FROM FALLING UNIT

Always use a properly working lifting device with a capacity suitable for the weight of the unit being serviced.

Always use a jack stand to support the unit while performing service, and chock remaining wheels to prevent the unit from rolling off the supports.

Never work under or around an elevated unit that is not properly supported and secured in position with wheel chocks.

**NOTE:** Gear drive models also have grease *zerks* located in the transmission casing beneath the *axle* bearings. Lubricate the grease *zerks* once a year.

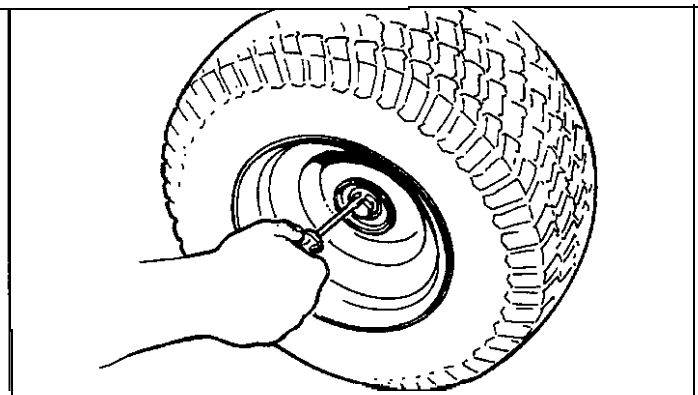


Figure 18. Rear Wheel Removal

## GEAR TRANSMISSION SERVICE

The Peerless MST-205-515A gear drive transmission does not require regular maintenance. See your authorized Simplicity Dealer for transmission service.

## CHANGE HYDRO TRANSMISSION OIL

Change the transmission oil after the first 50 hours of operation and then after every 250 hours. Fill the transmission with SAE 10W-30 motor oil with a minimum API rating of SG or CD. To change the oil:

**ATTENTION:** It is critical that *dirt* and *water* be *kept out* of the transmission. Thoroughly clean and *dry all the surrounding surfaces* before opening the transmission.

1. Remove the battery and clean the battery compartment. (See Battery Maintenance).
2. Clean off the fill plug (see Figure 19).
3. Using a screwdriver, pry the fill plug out of the transmission and remove the spring.
4. Remove the drain plugs from the bottom of the transmission case and drain the transmission (Figure 20).
5. Replace the drain plugs and fill the transmission with oil up to the top notch (see Figure 19 inset).
6. Replace the spring and fill plug. Reinstall the battery. (See Battery Maintenance).

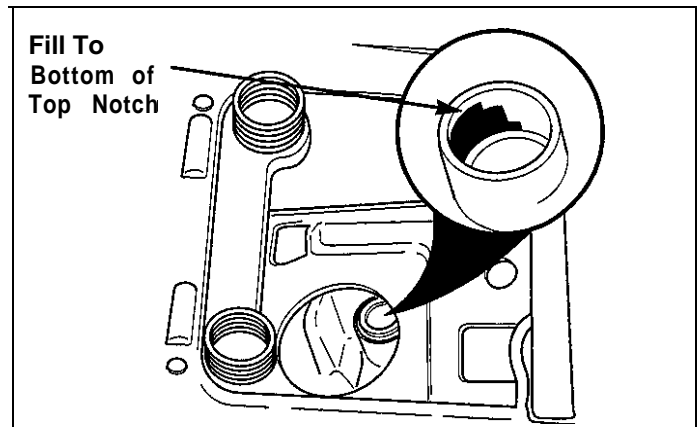


Figure 19. Hydro Transmission Fill Plug Location

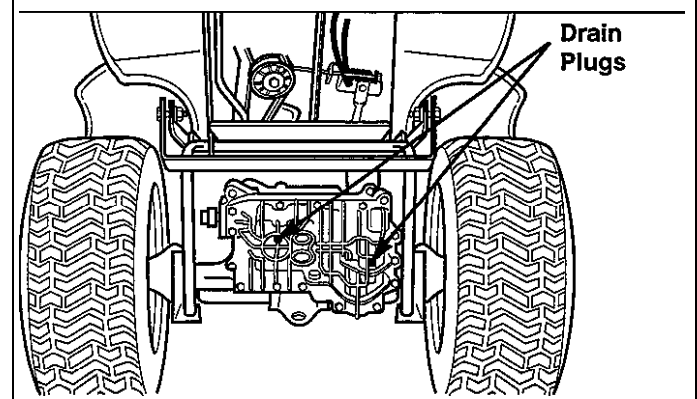


Figure 20. Draining the Hydro Transmission

## BATTERY MAINTENANCE

### WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

### Checking the Battery Fluid

1. Raise the seat.
2. Remove the battery filler cap (C, Figure 21). Fluid must be even with the split ring full mark. If not, add distilled water.
3. Reinstall the filler cap.

### Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable first (B, Figure 21).
2. Remove the battery and clean the compartment with a solution of baking soda and water.
3. Clean the battery terminals and cable ends with a wire brush until shiny.
4. Reinstall the battery and reattach the battery cables, positive first.
5. Coat the cable ends and battery terminals with grease or petroleum jelly.

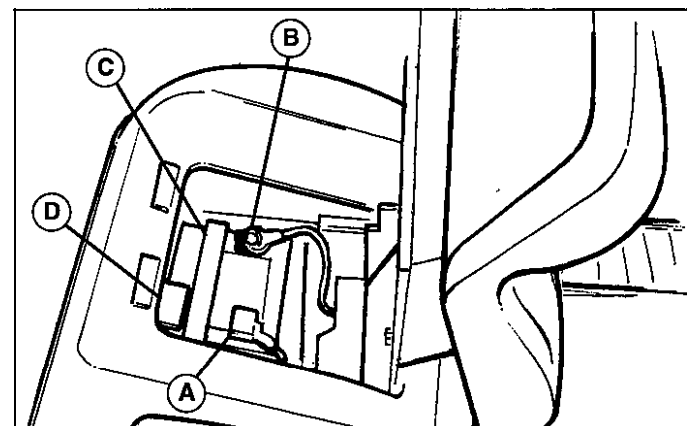


Figure 21. Battery

- A. Positive Battery Terminal
- B. Negative Battery Terminal
- C. Battery Cap
- D. Battery Clamp

### **A**

### WARNING

When removing or installing battery cables, disconnect the negative cable **FIRST** and reconnect it **LAST**. If not done in this order, the positive terminal can be shorted to the frame by a tool.

## SERVICING THE MOWER BLADES

### **A** WARNING

For your personal safety, do not handle the sharp mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

1. Remove mower from the tractor. See Mower Installation & Removal in the Operation section of this manual.
2. Blades should be sharp and free of nicks and dents. If not, sharpen blades as described in following steps.
3. To remove blade for sharpening, use wooden block to hold blade while removing the blade mounting cap-screw (Figure 22).
4. Use a file to sharpen blade to fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged, it should be replaced.
5. Balance the blade as shown in Figure 23. Center the blades' hole on a nail lubricated with a drop of oil. A balanced blade will remain level.
6. Reinstall each blade with the tabs pointing **up** toward deck as shown in Figure 24. Secure with a capscREW, spring washer and hex washer. Use a wooden block to prevent blade rotation and torque capscrews to 50-70 ft.lbs. (67-95 N.m.).

### **A** WARNING

For your personal safety, blade mounting cap-screws must each be installed with a hex washer and spring washer, then securely tightened. Torque blade mounting capscREW to 50 - 70 ft. lbs. (67 - 95 N.m.)

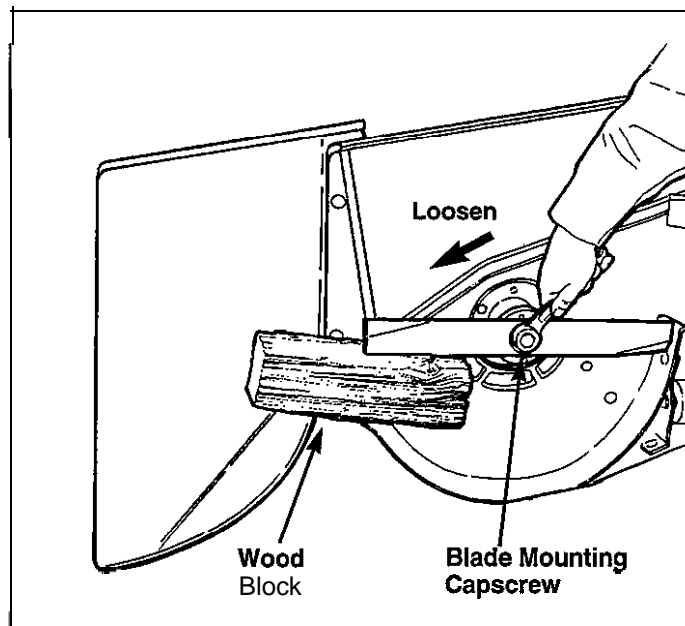


Figure 22. Removing the Blade

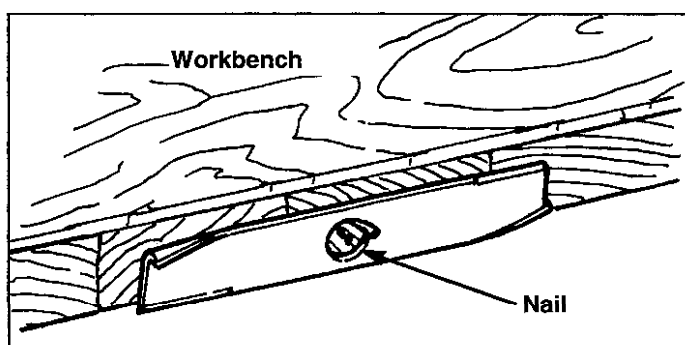


Figure 23. Balancing The Blade

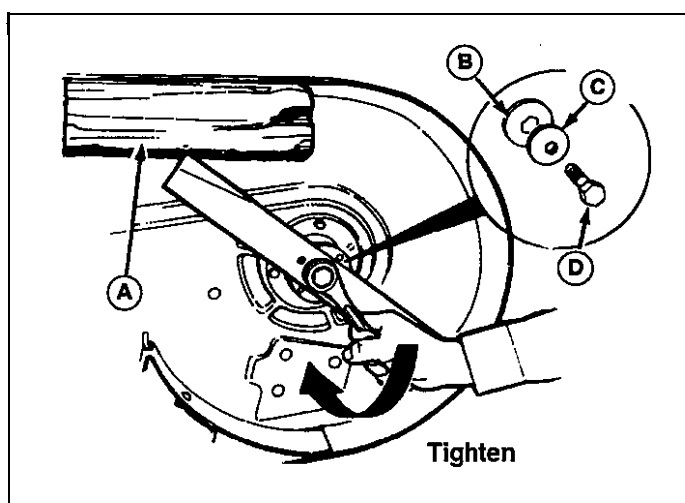


Figure 24. Installing The Blade

- |                   |                  |
|-------------------|------------------|
| A. 4x4 Wood Block | C. Spring Washer |
| B. Hex Washer     | D. Blade Bolt    |

## ⚠ WARNING

Never store the tractor, with gasoline in engine or fuel tank, in a heated shelter or in enclosed, poorly ventilated enclosures. Gasoline fumes may reach an open flame, spark or pilot light (such as a furnace, water heater, clothes dryer, etc.) and cause an explosion.

Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to your person or property.

Drain fuel into an approved container outdoors away from open flame or sparks.

## TEMPORARY STORAGE (30 DAYS OR LESS)

Remember, the fuel tank will still contain some gasoline, so never store the tractor indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the tractor in any **structure** used for human or animal habitation.

Here is a checklist of things to do when storing your tractor temporarily or in between uses:

- Keep the tractor in an area away from where children may come into contact with it. If there's any chance of unauthorized use, remove the spark plug (s) and put in a safe place. Be sure the spark plug opening is protected from foreign objects with a suitable cover.
- If the tractor can't be stored on a reasonable level **surface**, chock the wheels.
- Clean all grass and **dirt** from the mower.

*NOTE: If storing **your** tractor between winter snow removal jobs in a cold area, we suggest that you **fill** the fuel tank at the completion of each job to prevent water condensation in the **fuel** tank. Wait for engine to cool before filling tank.*

## LONG TERM STORAGE (LONGER THAN 30 DAYS)

Before you store your tractor for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

1. Drain crankcase oil while engine is hot and refill with a grade of oil that will be required when tractor is used again.
2. Prepare the mower deck for storage as follows:
  - a. Remove mower deck from the tractor.
  - b. Clean underside of mower deck.
  - c. Coat all bare metal surfaces with **paint** or light coat of oil to prevent rusting.
3. Clean external surfaces and engine.
4. Prepare engine for storage. See engine owner's manual.
5. Clean any dirt or grass from cylinder head cooling fins, engine housing and air cleaner element.

6. Cover air cleaner and exhaust outlet **tightly** with plastic or Other **waterproof** material to keep out moisture, dirt and insects.
7. Completely grease and oil tractor as outlined in the Normal Care section.
8. Clean up tractor and apply paint or rust preventative to any areas where paint is chipped or damaged.
9. Be sure the battery is filled to the proper level with water and is fully charged. Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If battery is left in tractor, disconnect the negative cable.
10. Drain fuel system completely or add a gasoline stabilizer to the fuel system. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions and storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing risk of explosion and fire.

*NOTE: Gasoline, if permitted to stand unused for extended periods (30 days **or** more), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, **add a** gasoline stabilizer to the fuel tank or drain **all** fuel from the system before placing unit in storage.*

## STARTING AFTER LONG TERM STORAGE

Before starting the tractor after it has been stored for a long period of time, perform the following steps.

1. Remove any blocks from under the tractor.
2. Install the battery if it was removed.
3. Unplug the exhaust outlet and air cleaner.
4. Fill the fuel tank with fresh gasoline. See engine manual for recommendations.
5. See engine owner's manual and follow all instructions for preparing engine after storage.
6. Check crankcase oil level and add proper oil if necessary.
7. Inflate tires to proper pressure. Check fluid levels.
8. Start the engine and let it run slowly. **DO NOT** run at high speed immediately after starting. Be sure to run engine only outdoors or in well ventilated area.

# Troubleshooting

This section of the manual provides troubleshooting and repair instructions for the more common and easily corrected problems. For other problems, it is recommended that you contact your dealer.

Locate the problem that best describes the trouble that you have encountered. Check the possible causes one at a time, in the order that they are listed.

## **A** WARNING

**Never attempt to perform repairs while the engine is running.**

**Always turn the engine off and remove the key.**

**FAILURE TO COMPLY WITH THIS, AND OTHER, SAFETY REQUIREMENTS CAN RESULT IN SERIOUS PERSONAL INJURY.**

## TROUBLESHOOTING THE TRACTOR

SYMPTOM	PROBLEM	SOLUTION ›
Engine will not turnover or start.	1. Gear Selector not in neutral-start position.	1. Shift into neutral.
	2. PTO (electric clutch) switch in ON position.	2. Place in OFF position.
	3. out of fuel.	3. If engine is hot, allow it to cool, then refill the fuel tank.
	4. Engine flooded.	4. Move throttle control out of CHOKE position.
	5. Circuit breaker tripped.	5. Wait one minute for automatic reset, replace if defective.
	6. Battery terminals require cleaning.	6. See Maintenance Section.
	7. Battery discharged or dead.	7. Recharge or replace.
	8. Wiring loose or broken.	8. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	9. Solenoid or starter motor faulty.	9. Repair or replace. See authorized dealer
	10. Safety interlock switch or module faulty.	10. Replace as needed. See authorized service dealer.
	11. Spark plug(s) faulty, fouled or incorrectly gapped.	11. Clean and gap or replace. See engine manual.
	12. Water in fuel.	12. Drain fuel & refill with fresh fuel.
	13. Gas is old or stale.	13. Drain fuel & replace with fresh fuel.
	14. Clutch/Brake pedal not depressed.	14. Depress pedal.
Engine starts hard or runs poorly.	1. Fuel mixture too rich.	1. Clean air filter. Check choke adjustment (engine speed control).
	2. Spark plug faulty, fouled, or incorrectly gapped.	2. Clean and gap or replace. See engine manual.
Engine knocks.	1. Low oil level.	1. Check/add oil as required.
	2. Using wrong grade oil.	2. See engine manual.
Excessive oil consumption.	1. Engine running too hot.	1. Clean engine fins, blower screen and air cleaner.
	2. Using wrong weight oil.	2. See engine manual.
	3. Too much oil in crankcase.	3. Drain excess oil.
Engine exhaust is black.	1. Dirty air filter.	1. Replace air filter. See maintenance section.
	2. Engine throttle control is in choke position.	2. Change engine speed control position.
Engine runs, but tractor will not drive.	1. Gear Selector in neutral.	1. Shift in forward or reverse.
	2. Transmission release lever in "push" position. (Hydro models only)	2. Move into drive position.
	3. Belt is broken.	3. See Drive Belt Replacement.
	4. Drive belt slips.	4. See problem and cause below.
	5. Brake is not fully released.	5. See authorized service dealer

## Troubleshooting the Tractor — Continued

SYMPTOM	PROBLEM	SOLUTION
Tractor drive belt slips.	<ol style="list-style-type: none"> <li>1. Clutch is out of adjustment.</li> <li>2. Pulleys or belt greasy or oily.</li> <li>3. Belt stretched or worn.</li> <li>4. Idler pulley pivot bracket "frozen" in <b>declutched</b> position.</li> </ol>	<ol style="list-style-type: none"> <li>1. See authorized service dealer.</li> <li>2. Clean as required.</li> <li>3. Replace belt.</li> <li>4. Remove idler pulley, clean and lubricate.</li> </ol>
Brake will not hold.	<ol style="list-style-type: none"> <li>1. Brake is incorrectly adjusted.</li> <li>2. Internal brake disc on <b>transaxle</b> worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. See Brake Adjustment.</li> <li>2. See authorized service dealer</li> </ol>
Tractor steers hard or handles poorly.	<ol style="list-style-type: none"> <li>1. Steering linkage is loose.</li> <li>2. Improper tire inflation.</li> <li>3. Spindle bearings dry.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and tighten any loose connections. See Steering Gear Adjustment.</li> <li>2. Check <b>and</b> correct. See Adjustment Section</li> <li>3. Grease spindles. See Lubrication Section</li> </ol>
Drive belt does not stop when <b>clutch/brake</b> pedal depressed.	<ol style="list-style-type: none"> <li>1. Belt stops or belt tension out of <b>adjustment</b>.</li> </ol>	<ol style="list-style-type: none"> <li>1. See authorized <b>service</b> dealer.</li> </ol>

## TROUBLESHOOTING THE MOWER

SYMPTOM	PROBLEM	SOLUTION
Mower will not raise.	<ol style="list-style-type: none"> <li>1. Lift rod not properly attached or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Attach or repair.</li> </ol>
Mower cut is uneven.	<ol style="list-style-type: none"> <li>1. Mower not leveled properly.</li> <li>2. Tractor tires not inflated equally <b>or</b> properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. See Mower Adjustment.</li> <li>2. See Maintenance Section.</li> </ol>
Mower cut is rough looking.	<ol style="list-style-type: none"> <li>1. Engine speed too slow.</li> <li>2. <b>Ground speed</b> too fast.</li> <li>3. Blades are dull.</li> <li>4. Mower drive belt slipping because it is oily or worn.</li> <li>5. Blades not properly fastened to arbors.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set to full speed.</li> <li>2. Slow down:</li> <li>3. Sharpen or replace blades. See Mower Blade Service.</li> <li>4. Clean or replace belt as necessary.</li> <li>5. See Servicing the Mower Blades.</li> </ol>
Engine stalls easily with mower engaged.	<ol style="list-style-type: none"> <li>1. Engine speed too slow.</li> <li>2. Ground speed too fast.</li> <li>3. Cutting height set too low.</li> <li>4. Discharge chute jamming with cut grass.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set to full throttle.</li> <li>2. Slow down.</li> <li>3. Cut tall grass at maximum <b>cutting</b> height during first pass.</li> <li>4. Cut grass with discharge pointing toward previously cut area.</li> </ol>
Excessive mower vibration.	<ol style="list-style-type: none"> <li>1. Blade mounting screws are loose.</li> <li>2. Mower blades, arbors, or pulleys are bent.</li> <li>3. Mower blades are out of balance.</li> <li>4. Belt installed incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten to 50-70 <b>ft.lbs. (74 N.m.)</b>.</li> <li>2. Check and replace as <b>necessary</b>.</li> <li>3. Remove, sharpen, and balance blades.</li> <li>4. See Maintenance Section.</li> <li>5. Reinstall Correctly.</li> </ol>
Excessive belt wear or breakage.	<ol style="list-style-type: none"> <li>1. Bent or rough pulleys.</li> <li>2. <b>Using</b> incorrect <b>belt</b>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace.</li> <li>2. Replace with correct belt.</li> </ol>
Mower drive belt slips or fails to drive.	<ol style="list-style-type: none"> <li>1. Idler pulley spring broken or not properly attached.</li> <li>2. Mower drive belt broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace as needed.</li> <li>2. Replace drive belt.</li> </ol>

# Battery Service

## CHECKING THE BATTERY VOLTAGE

### WARNING

**Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.**

A voltmeter can be used to determine condition of battery. When engine is off, the voltmeter shows battery voltage, which should be 12 volts. When engine is running, the voltmeter shows voltage of charging circuit which normally is 13 to 14 volts.

A dead battery or one too weak to start the engine may not mean the battery needs to be replaced. It may, as an example, mean that the alternator is not charging the battery properly. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Normal Care Section.

## CHARGING A COMPLETELY DISCHARGED BATTERY

1. Be aware of all the safety precautions you should observe during the charging operation. If you are unfamiliar with the use of a battery charger and hydrometer, have the battery serviced by your dealer.

### WARNING

**Do not attempt to charge a frozen battery. Allow the battery to warm to 60° F (15.5° C) before placing on charge.**

2. Add water sufficient to cover the plate (fill to the proper level near the end of the charge). If the battery is extremely cold, allow it to warm before adding water because the water level will rise as it warms. Also, an extremely cold battery will not accept a normal charge until it becomes warm.
3. Always unplug or turn the charger off before attaching or removing the clamp connections.
4. Carefully attach the clamps to the battery in proper polarity (usually red to [+] positive and black to [-] negative).
5. While charging, periodically measure the temperature of the electrolyte. If the temperature exceeds 125° F (51.6° C), or if violent gassing or spewing of electrolyte occurs, the charging rate must be reduced or temporarily halted to prevent battery damage.
6. Charge the battery until fully charged (i.e. until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). The

best method of making certain a battery is fully charged, but not over charged, is to measure the specific gravity of a cell once per hour. The battery is fully charged when the cells are gassing freely at low charging rate and less than 0.003 change in specific gravity occurs over a three hour period.

## JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

Jump starting is not recommended. However, if it must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow the steps below EXACTLY, being careful not to cause sparks. Refer to Figure 25.

1. Both batteries must be of the same voltage.
2. Position the vehicle with the booster battery adjacent to the vehicle with the discharged battery so that booster cables can be connected easily to the batteries in both vehicles. Make certain vehicles do not touch each other.
3. Wear safety glasses and shield eyes and face from batteries at all times. Be sure vent caps are tight. Place damp cloth over vent caps on both batteries.
4. Connect positive (+) cable to positive post of discharged battery (wired to starter or solenoid).
5. Connect the other end of same cable to same post marked positive (+) on booster battery.
6. Connect the second cable negative (-) to other post of booster battery.
7. Make final connection on engine block of stalled vehicle away from battery. Do not lean over batteries.
8. Start the engine of the vehicle with the booster battery. Wait a few minutes, then attempt to start the engine of the vehicle with the discharged battery.
9. If the vehicle does not start after cranking for thirty seconds, STOP PROCEDURE. More than thirty seconds seldom starts the engine unless some mechanical adjustment is made.
10. After starting, allow the engine to return to idle speed. Remove the cable connection at the engine or frame. Then remove the other end of the same cable from the booster battery.
11. Remove the other cable by disconnecting at the discharged battery first and then disconnect the opposite end from the booster battery.
12. Discard the damp cloths that were placed over the battery vent caps.

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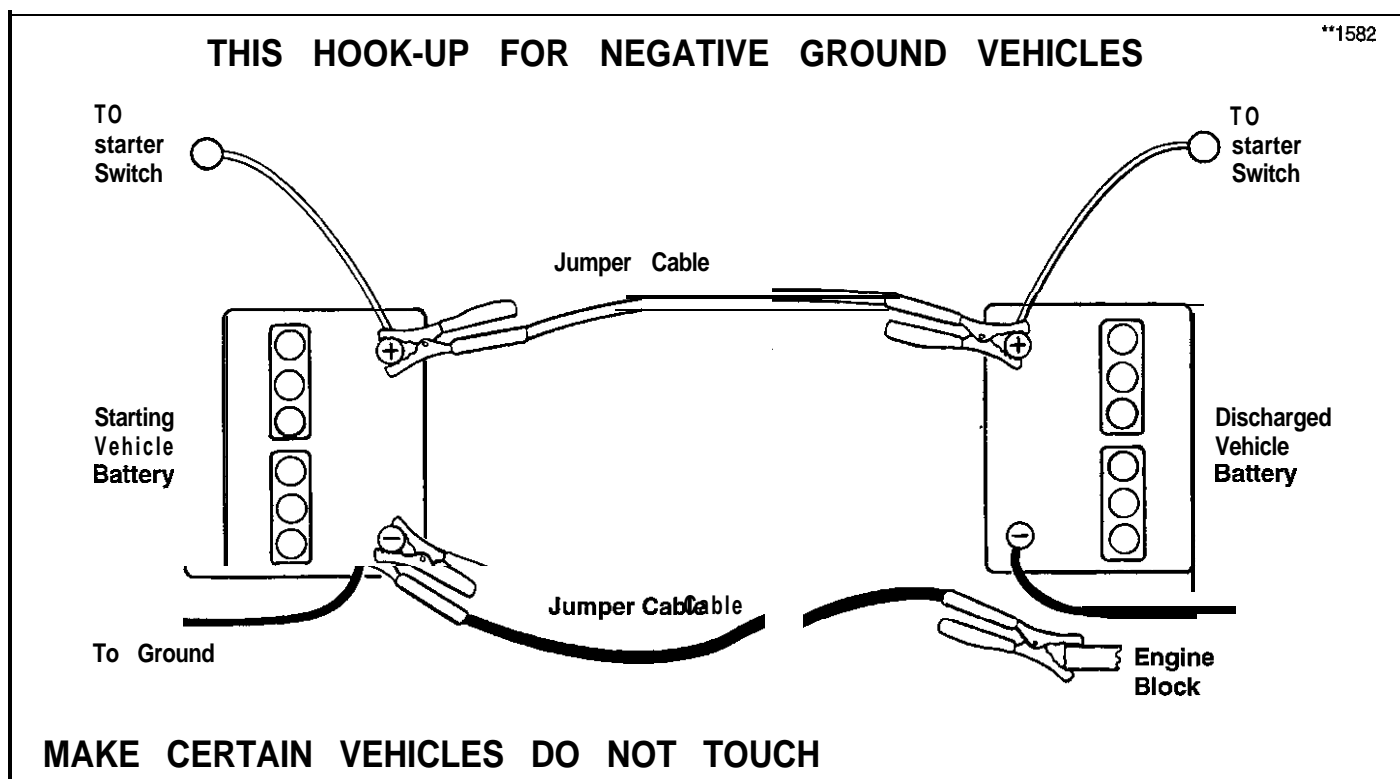


Figure 25. Battery Jump Starting Diagram

**A WARNING**

Any procedure other than the preceding could result in:

- (1) personal injury caused by electrolyte squirting out the battery vents,
- (2) personal injury or property damage due to battery explosion,
- (3) damage to the charging system of the booster vehicle or of the immobilized vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents on the battery. If ice can be seen or if the electrolyte fluid cannot be seen, do not attempt to start with jumper cables as long as the battery remains frozen.

**A WARNING**

To avoid engine damage, do not disconnect battery while engine is running. Be sure terminal connections are tight before starting.

**A WARNING**

For your personal safety, use extreme care when jump starting. Never expose battery to open flame or electric spark — battery action generates hydrogen gas which is flammable and explosive. Do not allow battery acid to contact skin, eyes, fabrics, or painted surfaces. Batteries contain a sulfuric acid solution which can cause serious personal injury or property damage.

**A WARNING**

When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.

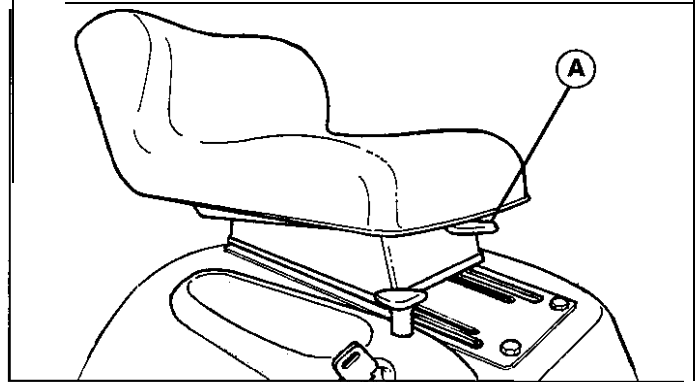


## **⚠ WARNING**

To avoid serious injury, perform adjustments only with engine stopped, key removed and tractor on level ground.

## SEAT ADJUSTMENT

The seat can be moved forward and back by moving the lever (A, Figure 26) underneath the front of the seat, then positioning the seat as desired.

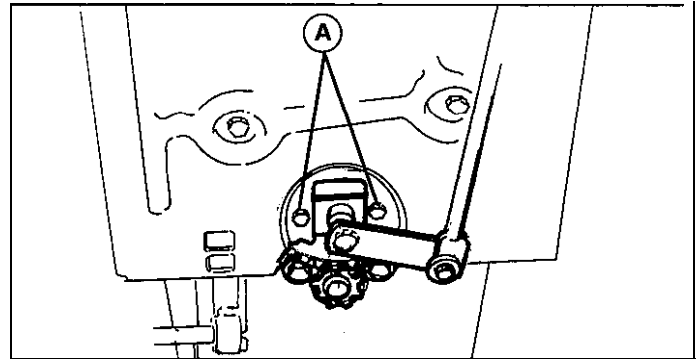


**Figure 26. Seat Adjustment**  
A. Seat Adjustment Lever

## STEERING GEAR ADJUSTMENT

If there is excessive slack in the steering system, the steering gear back lash can be eliminated by re-indexing the it to the steering shaft gear with the following adjustment.

1. Loosen the two capscrews (A, Figure 27)
2. Push the bracket so that the gear teeth are closely meshed.
3. Retighten the nuts after adjustment.



**Figure 27. Steering Gear Adjustment**  
A. Capscrews

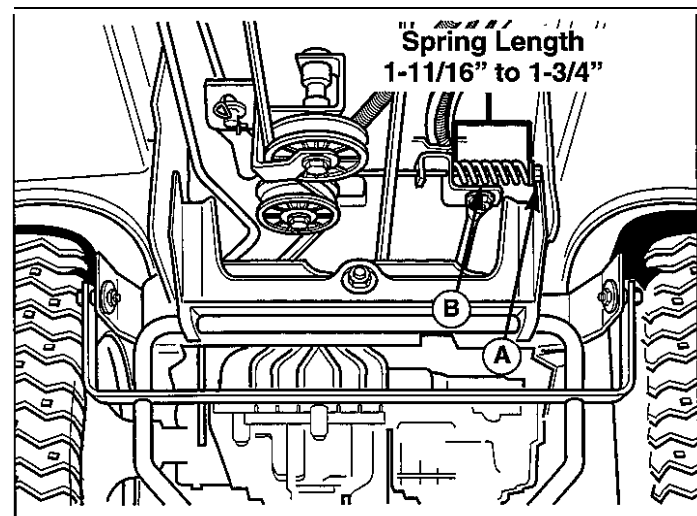
## BRAKE & BRAKE SPRING ADJUSTMENT - HYDRO

*Note: All hydro brake adjustment is accomplished through brake spring adjustment.*

1. Fully depress brake pedal and lock parking brake.
2. See Figure 28. With the tractor parked on a level surface adjust the brake rod nut (A) until spring (B) is compressed to a length of 1.69"-1.75" (1-11/16" to 1-3/4").
3. Check the adjustment by backing the tractor up a hill, engaging the parking brake, and shutting off the engine. While seated in the operator's position park the tractor for at least 30 seconds and watch for movement.

If the parking brake does not hold, tighten the spring.

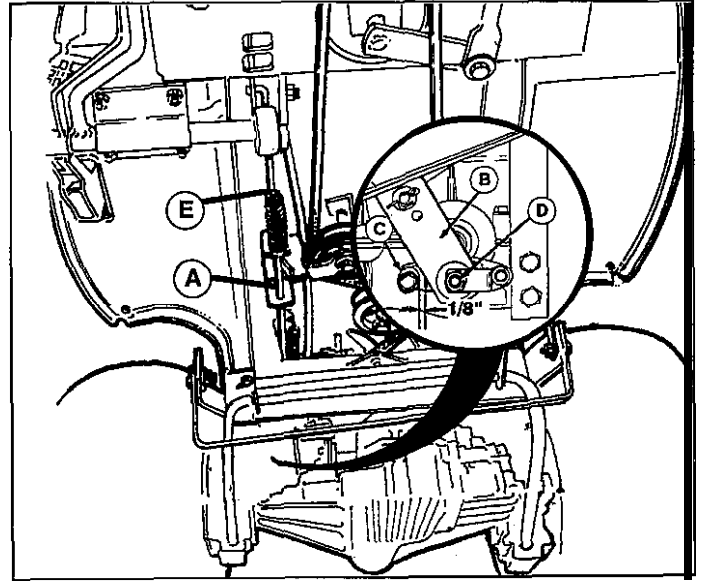
If the parking brake cannot be engaged, loosen the brake spring.



**Figure 26. Brake Spring Adjustment - Hydro Models**  
A. Nut  
B. Spring

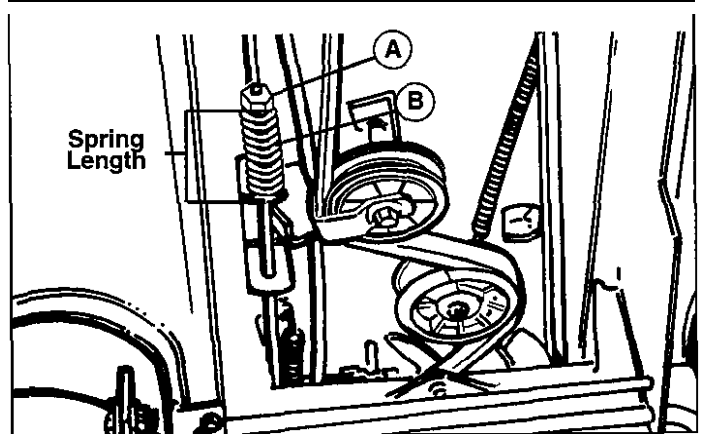
## BRAKE & BRAKE SPRING ADJUSTMENT-GEAR

1. Place the transmission in gear and release the parking brake.
2. See Figure 29. Move the brake cam lever(B) forward. There should be a  $\frac{1}{8}$ " gap between the lever (B) and the stop (C) as shown in the inset.
3. To adjust clearance, turn nut (D) clockwise to decrease the gap or turn nut counterclockwise to increase the gap.
4. See Figure 30. Set the parking brake. Loosen or tighten adjustment nut (E) to achieve a  $2\frac{3}{8}$ " to  $2\frac{1}{2}$ " compressed spring length as shown.



**Figure 29. Brake Adjustment - Gear Models**

- |                    |                    |
|--------------------|--------------------|
| A. Brake Rod       | D. Adjustment Nut  |
| B. Brake Cam Lever | E. Spring Adj. Nut |
| C. stop            |                    |



**Figure 30. Brake Spring Adjustment - Gear Models**

- |        |           |
|--------|-----------|
| A. Nut | B. Spring |
|--------|-----------|

## **A WARNING**

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wire and fasten it away from the spark plug.

## **MOWER ADJUSTMENTS**

### **Leveling The Mower**

If the cut is uneven, the mower may need leveling. Unequal or improper tire pressure may also cause an uneven cut. Tire pressure should be as follows:

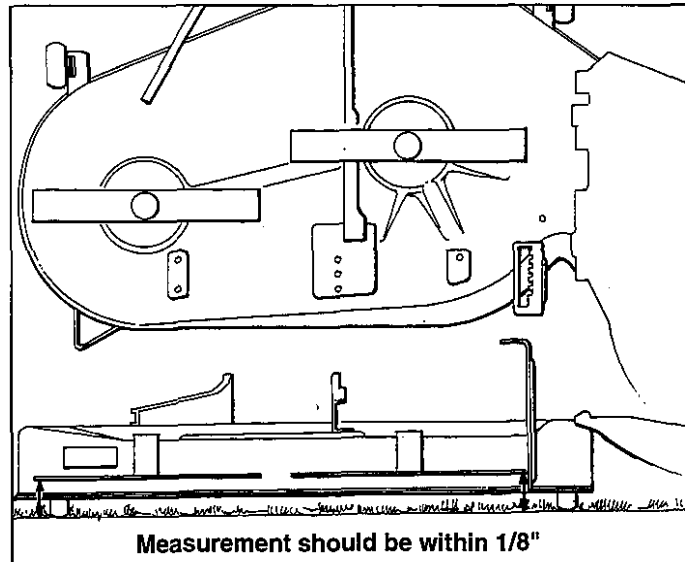
- Front: 12 - 15 psi (82-103 kPa)
- Rear: 10 - 12 psi (56-82 kPa)

#### **SIDE-TO-SIDE ADJUSTMENT**

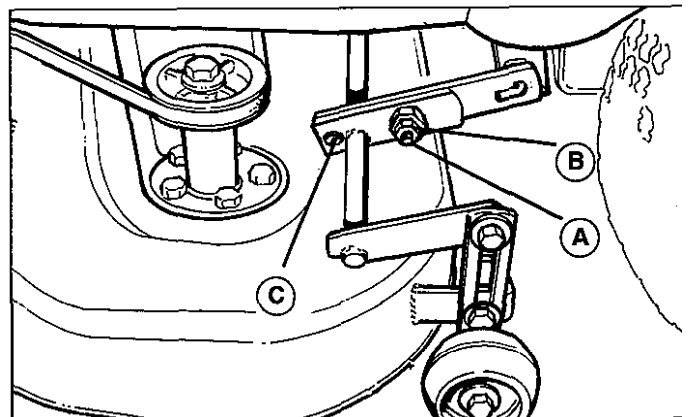
1. With the mower installed, place the tractor on a smooth, level surface such as a concrete floor. Turn the front wheels straight forward.
2. Check for bent blades and replace if necessary.
3. Place the mower in high-cut position. Arrange the mower blades so that they are pointing from side-to-side (Figure 31).
4. See Figure 31. Measure the distance between the outside tips of each blade and the ground. If there is more than  $\frac{1}{8}$ " (3mm) difference between the measurements on each side, proceed to step 5. If the difference is  $\frac{1}{8}$ " (3mm) or less, proceed to step 6.
5. See Figure 32. Loosen the outside nut (A) and tap-tite screw (C), then turn the eccentric nut (B) to raise or lower the left side of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut. Tighten the tap-tite screw (C).

#### **FRONT-TO-SACK ADJUSTMENT**

1. Arrange the blades so they face front-to-back (Figure 33).
2. See Figure 33. Measure the distance from the ground to the front and rear tips of each blade. The measurement should be equal for both blades. Front tips should be equal to rear tips or within  $\frac{1}{8}$ " higher. If not, proceed to step 8.

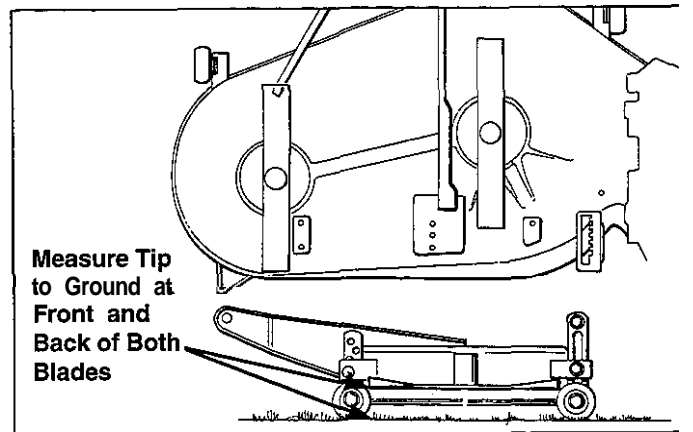


**Figure 31. Leveling the Mower Deck Side-to-Side (38" Mower Deck Shown)**



**Figure 32. Side-to-Side Adjustment**

- A. Outside Nut
- B. Eccentric Nut
- C. Tap-tite Screw



**Figure 33. Leveling the Mower Deck Front-to-Back (38" Mower Deck Shown)**

- See Figure 34. Loosen the outside nut (A) and turn the eccentric nut (B) to raise or lower the rear of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut.

*NOTE: If mower handle drops out of cutting height quadrant, turn adjustment nut (C, Figure 34) clockwise to increase spring tension. DO NOT tighten nut all the way so that spring is solid.*

## BLADE BRAKE CHECK

Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned off.

- With tractor in neutral, PTO disengaged and operator in seat, start the engine.
- Look over the left-hand footrest at the mower drive belt. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
- If mower drive belt does not stop within five seconds, see your dealer.

## MOWER BELT REPLACEMENT

### 38" Mowers

- Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
- Remove the mower deck from the tractor. See Mower Installation & Removal in the Operation section.
- Remove the old belt and install the new belt over the pulleys as shown in Figure 35.
- Reinstall the mower deck on the tractor.

### 44" Mowers

- Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
- Remove the mower deck from the tractor. See Mower Installation & Removal in the Operation section.
- Remove both belt covers.
- Loosen the idler pulley bolt.
- Remove the old belt and install the new belt over the pulleys as shown in Figure 36.
- Tighten the idler pulley bolt.
- Reinstall both belt covers.
- Reinstall the mower deck on the tractor.

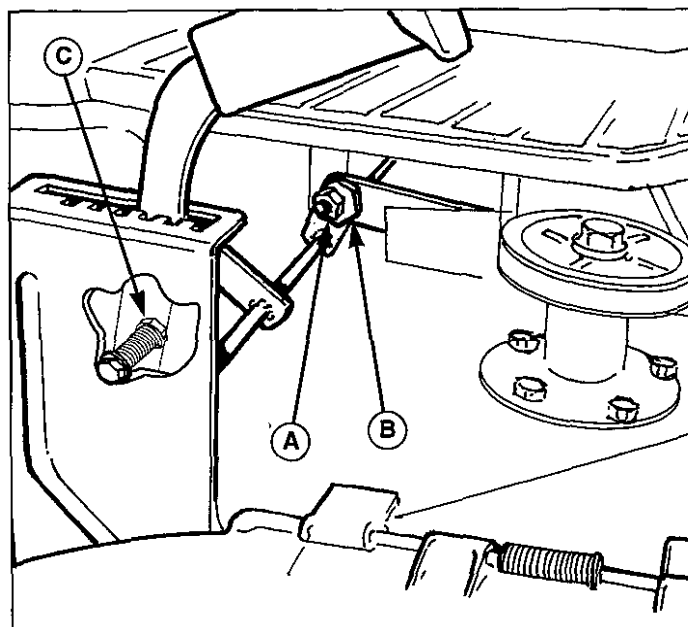


Figure 34. Front-to-Back Adjustment Nut

- A. Outside Nut
- B. Eccentric Nut
- C. Adjustment Nut

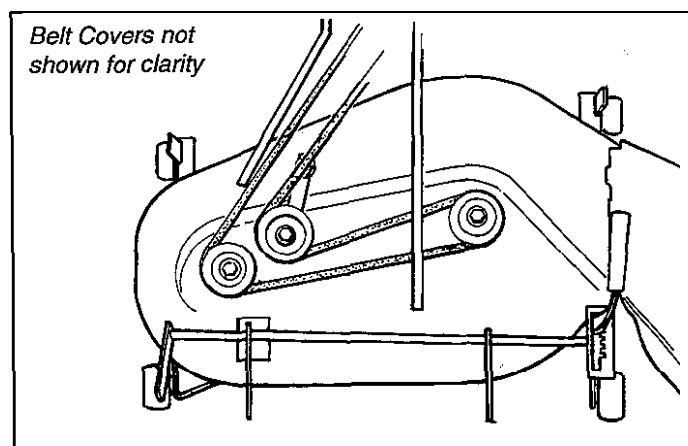


Figure 35. Mower Deck Belt Routing - 38" Deck

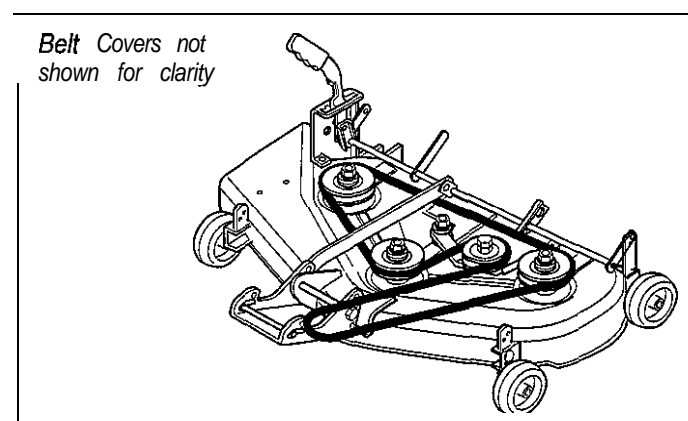


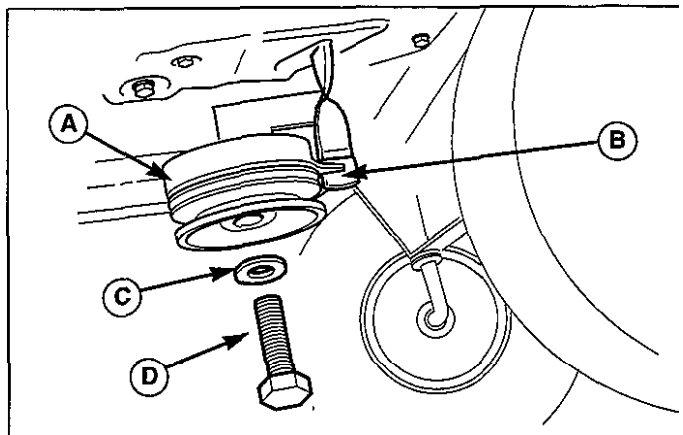
Figure 36. Mower Deck Belt Routing - 44" Deck

## TRACTOR DRIVE BELT REPLACEMENT

### **A CAUTION**

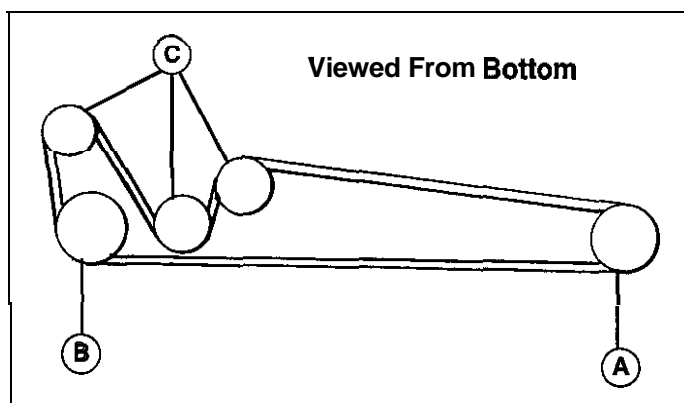
**To avoid damaging belts, do not pry belts over pulleys.**

1. Park the tractor on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
  2. Remove the mower deck from the tractor. See Mower Installation & Removal.
  3. Unplug the wiring harness from the PTO. Remove the PTO as shown in Figure 37.
  4. Remove the drag link rear hardware. When reassembling, apply thread locking compound to nut before tightening.
  5. On gear **models**, disconnect the wires from the neutral switch on the transmission.
- On hydro models**, loosen the belt stop on the transmission pulley. Belt stop hardware is located on the inside of RH frame. Move belt stop out of the way. Belt stop should be positioned  $\frac{1}{8}$ " from belt when new belt is installed and hardware is tightened.
6. Carefully slide belt over transmission pulley and remove from other pulleys.
  7. Install new belt as shown in Figures 38 and 39.
  8. Reverse steps 1-5.



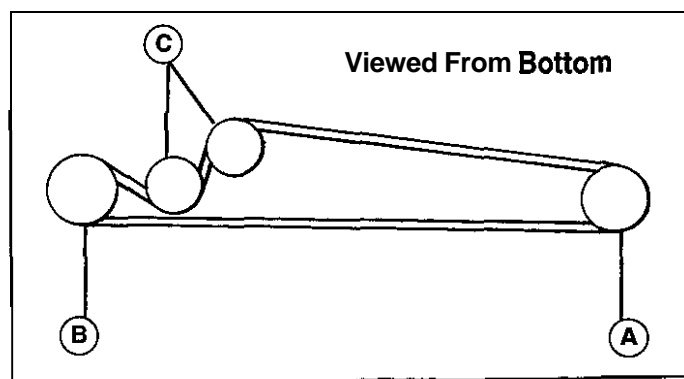
**Figure 37. PTO (Electric Clutch) Assembly**

- |           |             |
|-----------|-------------|
| A. PTO    | C. Washer   |
| B. Sleeve | D. Capscrew |



**Figure 38. Drive Belt Routing - Gear Models**

- |                        |                 |
|------------------------|-----------------|
| A. Engine Pulley       | C. Idler Pulley |
| B. Transmission Pulley |                 |



**Figure 39. Drive Belt Routing - Hydro Models**

- |                        |                 |
|------------------------|-----------------|
| A. Engine Pulley       | C. Idler Pulley |
| B. Transmission Pulley |                 |

*NOTE: Specifications are correct at time of printing and are subject to change without notice.*

## ENGINE:

### 16 HP Kohler Command

<b>Make</b>	Kohler
<b>Model</b>	CommandTM CV16S
<b>Horsepower</b>	16 @ 3600 rpm
<b>Cylinder</b>	1
<b>Bore</b>	3.55 in (90 mm)
<b>Stroke</b>	2.64 in (67 mm)
<b>Displacement</b>	26.0 Cu. in (426 cc)
<b>Construction</b>	Overhead Valve, Cast-Iron Sleeve, Aluminum Crankcase
<b>Electrical System</b>	12 Volt, 15 amp. Alternator Regulated Battery: 12 Volt, 200 Cold Cranking amps, 23 Min. Reserve Capacity
<b>Ignition</b>	High Energy Electronic Ignition
<b>Air Cleaner</b>	Ducted Paper Cartridge and Foam Pre-Full Pressure Lube w/Oil Filter
<b>Lubrication</b>	4.0 Pints w/Filter (1.9 L)
<b>Oil Capacity</b>	Material: High-Density Polyethylene, Transparent
<b>Fuel Tank</b>	Capacity: 2.0 Gallons (7.5 L)
<b>Muffler</b>	Quiet Compact, Low Back Pressure

### 14 HP Kohler Command

<b>Make</b>	Kohler
<b>Model</b>	CommandTM CV14S
<b>Horsepower</b>	14 @ 3600 rpm
<b>Cylinder</b>	1
<b>Bore</b>	3.43 in (87 mm)
<b>Stroke</b>	2.64 in (67 mm)
<b>Displacement</b>	24.3 Cu. in (398 cc)
<b>Construction</b>	Overhead Valve, Cast-Iron Sleeve, Aluminum Crankcase
<b>Electrical System</b>	12 Volt, 15 amp. Alternator Regulated Battery: 12 Volt, 200 Cold Cranking amps 23 Min. Reserve Capacity
<b>Ignition</b>	High Energy Electronic Ignition
<b>Air Cleaner</b>	Ducted Paper Cartridge and Foam Pre-Full Pressure Lube w/Oil Filter
<b>Lubrication</b>	4 Pints w/Filter (1.9 L)
<b>Oil Capacity</b>	Material: High Density Polyethylene, Transparent
<b>Fuel Tank</b>	Capacity: 2.0 Gallons (7.5 L)
<b>Muffler</b>	Quiet Compact, Low Back Pressure

## CHASSIS:

<b>Frame</b>	Heavy Gauge Steel Channel - 12/14 Gauge Engine Mounting: Above Front Axle Pivot Point Location: Rear Carrier
<b>Rear Wheels</b>	Tire Size: 20 x 8-8 Turf Type Pneumatic Inflation Pressure: 12-15 psi (82-103 kPa)
<b>Front Wheels</b>	Tire Size: 15 x 6.00-6 Pneumatic Inflation Press.: 12-15 psi (82-103 kPa)
<b>Accessibility</b>	Bearings: Sintered Iron with Grease Fittings Hood Tips Forward, Seat Tips Forward for
<b>Seat</b>	High-Back, Quick Adjust, Spring Suspension
<b>Turning Radius</b>	Inside Rear Tire: 14 in (36 cm)

## TRANSMISSION:

### Hydro Models

<b>Type</b>	Hydrostatic Tuff Torq K56
<b>Pump</b>	Variable Displacement Axial Piston
<b>Motor</b>	Fixed Displacement Axial Piston
<b>Control</b>	Single Pedal Foot Control Free-Wheeling Lever for Manual Tractor
<b>Movement</b>	
<b>Hydraulic Fluid</b>	10w 30 Premium Engine Oil
<b>Speeds</b>	Forward: 0-5.6 MPH (9.0 km/h) Reverse: 0-3.0 MPH (4.6 km/h)
<b>@ 3400 rpm</b>	
<b>Differential</b>	Bevel Gear Type
<b>Axle Shaft</b>	.75 in
<b>Continuous Torque</b>	170 ft. lbs.
<b>Output</b>	
<b>Drawbar Rating</b>	227 lbs.
<b>Maximum Weight on Axle</b>	673 lbs.

### Gear Models

<b>Type</b>	Peerless MST 205, EP 90 Oil
<b>Material</b>	Spur Gear Shaft: Hardened Bearings: Needle Roller & Bushings
<b>Lubrication</b>	
<b>Speeds</b>	Five Forward, One Reverse
<b>Speeds</b>	1st: 1.0 MPH (1.6 km/h) 2nd: 2.0 MPH (3.2 km/h) 3rd: 3.0 MPH (4.8 km/h) 4th: 4.2 MPH (6.7 km/h) 5th: 4.7 MPH (7.5 km/h) Rev: 1.4 MPH (2.2 km/h)
<b>@ 3400 rpm</b>	
<b>Differential</b>	Bevel Gear Type
<b>Axle Shaft</b>	.75 in
<b>Continuous Torque</b>	225 ft. lbs.
<b>Output</b>	
<b>Drawbar Rating</b>	300 lbs.
<b>Maximum Weight on Axle</b>	525 lbs.

## CONTROLS:

<b>Steering</b>	13.5" (34 cm) Steering Wheel Gear and Sector, 1.5 turns Lock to Lock Combination Clutch/Brake/Parking Brake
<b>Clutch/ Pedal</b>	
<b>Brake Pedal</b>	Parking Brake Lock, Foot/Hand Activated PTO Clutch Electric, Seat Deck
<b>Location</b>	Hydro Models: Hydrostatic Control Single
<b>Lever Foot Pedal,</b>	
	Gear Models: Shift Lever: Seat Deck R.H. Ignition Key Switch: On Seat Deck Throttle Lever & Choke Lever: (Combined) On Dash Panel

# Specifications

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## DIMENSIONS

Overall Length	68 in (172 cm)
Overall Width	36 in (92 cm)
Height	At Steering Wheel: 41 in (104 cm) To Top of Engine Cover: 34 in (86 cm) 50 in (127 cm)
Wheel Base	
Weight (approx.)	
Net	371 lbs. (168 kg) w/44 in mower 463 lbs. (210 kg)
Shipping	684 lbs. (310 kg) w/44 in mower

## MOWER:

### 44" Mower

Thickness	12 Ga.
Effective Cutting Width	44 in Mower - 44 in (111.8 cm)
Overall Width with Deflector with Turbo	56 in (142.2 cm) 44 in Mower - 58 in (147 cm)
Weight	107 lbs. (49 kg)
Cutting Height cm)	Variable Between 1.5 and 3.9 in (3.8 and 10 cm)
Blade Arrangement	Three Staggered Blades
Mower Drive	V-Belt from Tractor PTO Electric Clutch
Spindle Bearings	Sealed Ball Bearings - Lube Fitting <b>Provided</b>
Tractor Height w/Snowcab	est. 70 in (177 cm)
Tractor Length w/Snowthrower	est. 90 in (228 cm)
Tractor Length w/Dozer Blade	est. 86 in (218 cm)

### 38" Mower

Thickness	14 Ga.
Effective Cutting Width	38 in Mower - 38 in (97 cm)
Overall Width with Deflector with Turbo	49.5 in (126 cm) 38 in Mower - 51.5 in (131 cm)
Weight	81 lbs. (36.7 kg)
Cutting Height cm)	Variable Between 1.5 and 3.9 in (3.8 and 10 cm)
Blade Arrangement	Two Staggered Blades
Mower Drive	V-Belt from Tractor Engine PTO Electric
Clutch	
Spindle Bearings	Sealed Ball Bearings - Lube Fitting <b>Provided</b>
Tractor Height w/Snowcab	est. 70 in (177 cm)
Tractor Length w/Snowthrower	est. 90 in (228 cm)
Tractor Length w/Dozer Blade	est. 86 in (218 cm)

### Replacement Parts

Tractor Drive Belt-Hydro Models	1717397
Tractor Drive Belt-Gear Models	1657044
44" Mower Drive Belt	1718017
44" Mower Blades	1704100
38" Mower Drive Belt	1666698
38" Mower Blade - RH	1704101
38" Mower Blade - LH	1704856
Fuel Filter	173206
Battery	1685215
Ignition Key	1717363
Headlight Bulb	1677371
Interlock Switch - PTO	1716332
Interlock Switch - Seat	1714771
Interlock Switch - Foot pedals	
- Switch, Black (normally open)	1704379
- Switch, Gray (normally closed)	1714770

### Maintenance Items

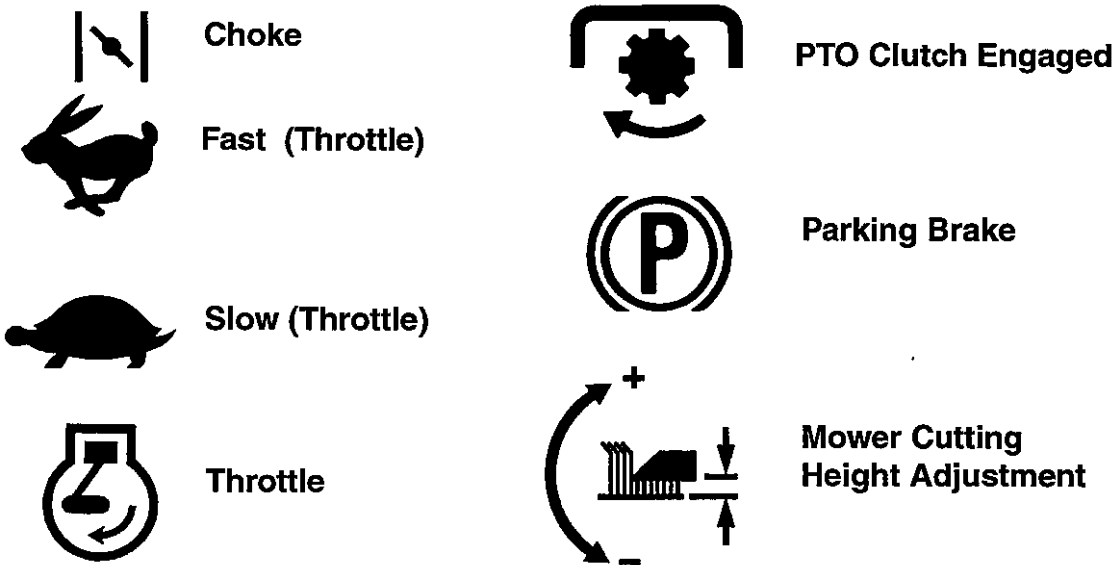
Engine Oil	
SAE 5W-30 SF/CD (Cold Weather 30° & under)	1685576
SAE 30W SG/CC (Warm weather 32° & up)	1685659
Touch-Up Paint	
Deep Orange, 13 oz. spray can	1685611
Deep Orange, 1 quart can	1685612
Deep Orange, 1/2 oz. bottle w/brush cap	1685615
Gloss Black, 13 oz. spray can	1685639
Gloss Black, 1 quart can	1685641
Metallic Grey, 13 oz. spray can	1685718
Red, 13 oz. spray can	1685722
Grease Gun Kit w/8 oz. Grease Tube	1685510
Replacement 8 oz. Grease Tube for above	103077
Tire Sealant	
11 oz. Tube	1685523
Degreaser/Degreaser	
32 oz. Bottle w/Trigger Spray	1685619
1 gallon	1685621
Gas Stabilizer	
8 oz. Bottle	1685748
Case of 12 - 8 oz. Bottles	1685747

### Optional Accessories

Snowthrower Cab	1692629
42" Single Stage Snowthrower	1691522
36" Single Stage Snowthrower	1691521
Snowthrower Hitch	1692622
Snowthrower/Dozer Lift Lever	1692623
42" Dozer/Snow Blade	1691520
Dozer Hitch	1692624
Rear Wheel Weights	1690555
Rear Weight	1692625
Rear Weight Hitch	1692636
Tire Chains	1690183
Turbo Twin Bag Grass Catcher	1692621
38" Turbo Blower	1692626
Twin Bag Grass Catcher	1692620
Front Counterweight	1691837
Dump Cart	1600236
Designer Seat Cover	1685540
Hour Meter Kit	1685535
Gas Cans	
1 gallon	1685587
2-1/2 gallon	1685555
5-1/4 gallon	1685556



## International Symbols



## Technical Manuals

### Additional Technical Literature Available

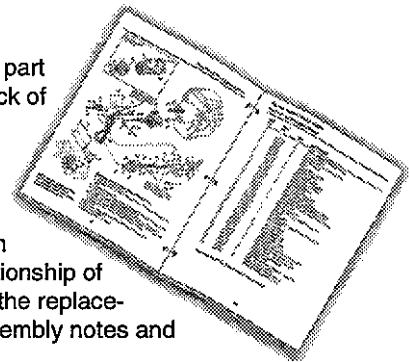


#### **Operators Manuals**

Additional copies of this manual are available, (and as part of our product support commitment, we maintain a stock of printed operators manuals going back many years!)

#### **Parts Manuals**

Fully illustrated parts manuals are also available — these manuals show all of the product's components in exploded views ("3D" illustrations which show the relationship of the parts and how they go together), as well as giving the replacement part numbers and quantities used. Important assembly notes and special torque values are included in these manuals.



*For the applicable manuals currently available for your model, contact our Customer Publications Department at 414-284-8519. Have the information listed in the box at the right available when phoning in your request.*

***Please allow 3 to 4 weeks for delivery.***



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