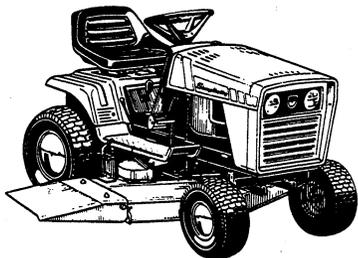


# 5200 SERIES

Hydrostatic Lawn  
Tractors



# OPERATOR'S MANUAL

***Simplicity***<sup>®</sup>

**This manual covers the following Manufacturer's Numbers:**

**5212.5H:** 12.5 HP TRACTOR  
**MFG. NO. 1691234**  
**MFG. NO. 1691235**  
**MFG. NO. 1691473**

**5216H:** 16 HP TRACTOR  
**MFG. NO. 1690810**  
**MFG. NO. 1690853**  
**MFG. NO. 1690881**  
**MFG. NO. 1690919**  
**MFG. NO. 1690936**  
**MFG. NO. 1691032**  
**MFG. NO. 1691033**  
**MFG. NO. 1691362**

**MOWERS:** 42" MOWER  
**MFG. NO. 1690708**  
**MFG. NO. 1691423**  
48" MOWER  
**MFG. NO. 1690709**  
**MFG. NO. 1691425**

# Table of Contents

<b>SAFETY RULES</b> .....	2	TRACTOR STORAGE .....	17
<b>DECALS</b> .....	4	TRACTOR OFF-SEASON STORAGE .....	17
<b>MOWER INSTALLATION &amp; REMOVAL</b> .....	5	STARTING AFTER STORAGE .....	17
<b>OPERATION</b> .....	8	MOWER LUBRICATION .....	18
CONTROLS .....	8	SHARPENING BLADES .....	18
SAFETY INTERLOCK SYSTEM .....	9	MOWER OFF-SEASON STORAGE .....	19
PUSHING THE TRACTOR BY HAND .....	10	<b>TROUBLESHOOTING &amp; REPAIR</b> .....	20
BEFORE OPERATING .....	10	BATTERY REPLACEMENT .....	22
STARTING THE ENGINE .....	10	JUMP STARTING .....	23
STARTING & STOPPING OPERATION .....	10	TRACTOR BELT REPLACEMENT .....	24
CLUTCH/BRAKE PEDAL OPERATION .....	12	MOWER BELT REPLACEMENT .....	25
MOWING PATTERN & TIPS .....	12	<b>ADJUSTMENTS</b> .....	27
<b>NORMAL CARE</b> .....	13	TRACTOR ADJUSTMENTS .....	27
OPERATING TIME .....	13	TRACTOR BRAKE .....	27
NORMAL CARE SCHEDULE .....	13	ENGINE PULLEY BELT STOPS .....	27
RAISING HOOD/SEAT DECK .....	13	NEUTRAL ADJUSTMENT .....	28
LUBRICATING THE TRACTOR .....	14	TRANS. CONTROL LEVER .....	28
ADJUSTING THE SEAT .....	15	TRANS. ENGAGEMENT LEVER .....	28
CHECKING/ADDING GASOLINE .....	15	MOWER ADJUSTMENTS .....	29
CHECK TRANSMISSION FLUID LEVEL .....	15	LIFT LEVER .....	33
FUEL FILTER .....	16	<b>SPECIFICATIONS</b> .....	34
BATTERY FLUID .....	16	<b>COMMON REPLACEMENT PARTS</b> .....	36
CLEANING THE BATTERY & CABLES .....	16	<b>OPTIONAL ATTACHMENTS &amp; ACCESSORIES</b> .....	37
TIRE PRESSURE .....	17	<b>PARTS MANUAL AVAILABLE</b> .....	39

## NOTE

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

# Safety Rules



**Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of vehicle, severe personal injury to yourself or bystanders, or damage to property or equipment. The triangle  in the text signifies important cautions or warnings which must be followed.**

- Know the controls and how to stop quickly. **READ THIS OPERATOR'S MANUAL** and instructions furnished with attachments.
- Do not allow children to operate the machine. Do not allow adults to operate it without proper instruction.
- Do not carry passengers. Do not mow when children and others are around.
- Clear the work area of objects (wire, rocks, etc.) that might be picked up and thrown.
- Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).
- Disengage power to attachments and stop the engine (motor) before leaving the operator's position.
- Disengage power to attachments and stop the engine (motor) before making any repairs or adjustments.
- Disengage power to attachments when transporting or not in use.
- Take all possible precautions when leaving the vehicle unattended, such as disengaging the power-take-off, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
- Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
- Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.
- Stay alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from drop-offs.
- Use care when pulling loads or using heavy equipment.
  - a. Use only approved drawbar hitch points.
  - b. Limit loads to those you can safely control.
  - c. Do not turn sharply. Use care when backing.
  - d. Use counterweights or wheel weights when suggested in this operator's manual.
- Watch out for traffic when crossing or near roadways.
- When using any attachments, never direct discharge of material toward bystanders or allow anyone near the vehicle while in operation.
- Handle gasoline with care — it is highly flammable.
  - a. Use approved gasoline container.
  - b. Never remove the fuel cap of, or add gasoline to, a running or hot engine or an engine that has not been

allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gasoline.

c. Open doors if the engine is run in the garage — exhaust fumes are dangerous. Do not run the engine indoors.

- Keep the vehicle and attachments in good operating condition, and keep safety devices in place and in working condition.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
- To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
- The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.

- Do not change the engine governor settings or overspeed the engine.

- When using the vehicle with mower, proceed as follows:

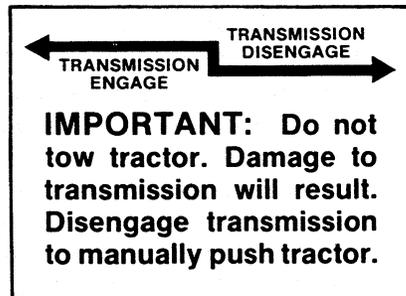
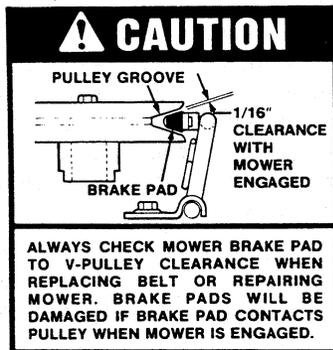
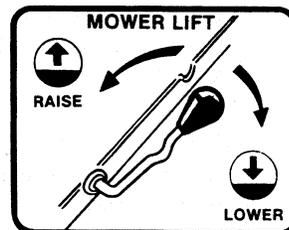
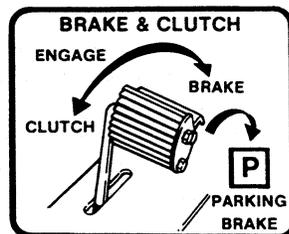
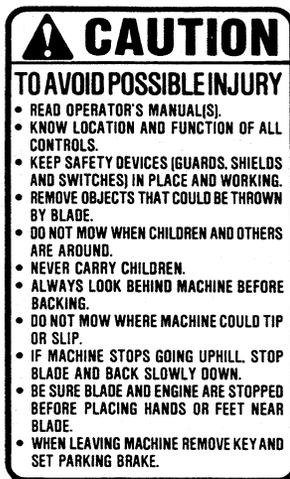
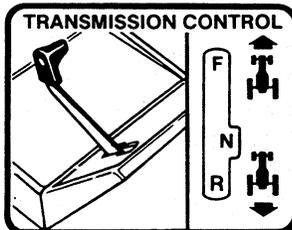
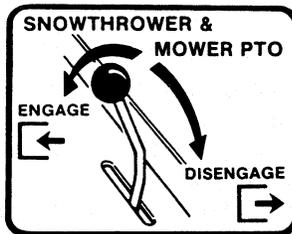
- a. Mow only in daylight or in good artificial light.
- b. Never make a cutting height adjustment while the engine (motor) is running if the operator must dismount to do so.
- c. Shut the engine (motor) off when removing the grass catcher or unclogging chute.
- d. Check the blade mounting bolts for proper tightness at frequent intervals.

- Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.

- Disengage power to mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.

## Decals

ALL WARNINGS, CAUTIONS, 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 messages on this page are on your tractor and mower.



# Mower Installation & Removal



## WARNING

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

## NOTE

The lift chain (E, figure 1) should be connected to the rear hole in lift arm (D) unless optional large lift lever (B, figure 8) is used to raise mower. With large lift lever, connect chain in forward hole.

## INSTALLATION

1. Place the tractor and mower on a flat, level surface, such as concrete, with the mower on the right side of the tractor.
2. Insert the end of the PTO rod (A, figure 1) from the right-hand side and work the "S" bend (C) around until rod appears as in figure 1.
3. Using the mower height control lever (F, figure 7), place the mower in lowest

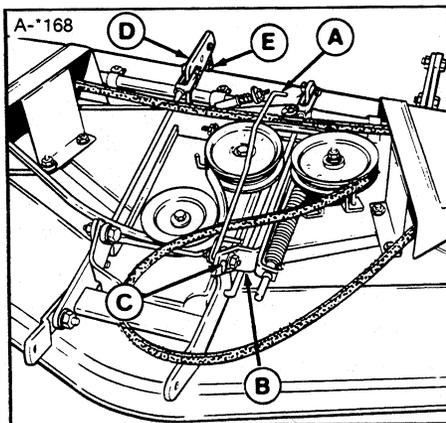


Figure 1. PTO Rod Connection (42" mower shown)

- |             |                 |
|-------------|-----------------|
| A. PTO Rod  | D. Lift Bracket |
| B. PTO Arm  | E. Chain        |
| C. "S" Bend |                 |

cutting height.

4. Turn the front wheels toward the left.
5. Place the lift lever fully forward so that lift arm (B, figure 2) is in lowest position.
6. Slide the mower under the tractor so that the lift chain (C, figure 2) is under the lift arm (B).

7. Insert the link (A) into lift arm (B) then pivot back and down. Secure chain (C) to clevis (D) with pin (E) and clip (F). (Early models are equipped with a simple hook instead of clevis assembly shown in figure 2.) If chain has four links, be sure to use only three links.
8. Lift up front of mower and insert pins (F, figure 3) to attach mower hitch arms to tractor hitch (E). (You can insert a pry bar under front edge of deck to raise.)

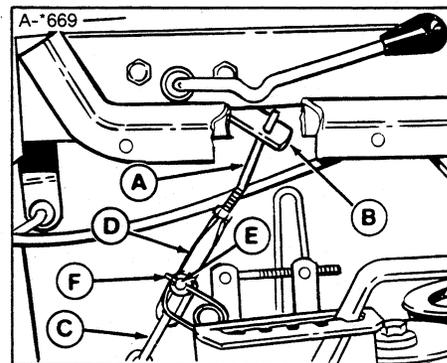


Figure 2. Lift Assembly

- |              |           |         |
|--------------|-----------|---------|
| A. Lift Link | C. Chain  | E. Pin  |
| B. Lift Arm  | D. Clevis | F. Clip |

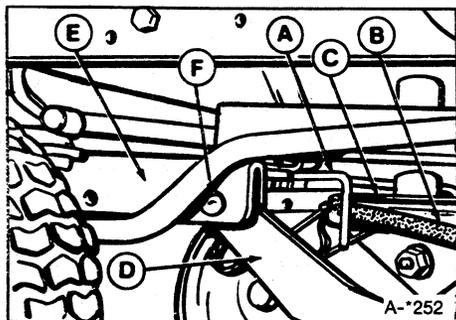


Figure 3. L.H. Belt Stop

- |               |                    |
|---------------|--------------------|
| A. Belt Stop  | D. Mower Hitch Arm |
| B. Belt       | E. Tractor Hitch   |
| C. PTO Pulley | F. Pins            |

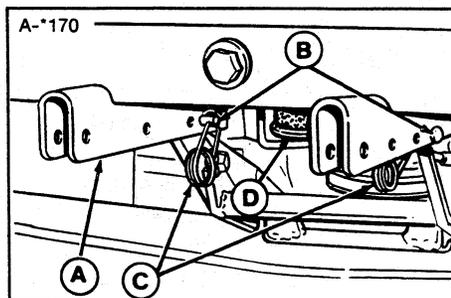


Figure 4. Mower Hitch Attached

- |                  |
|------------------|
| A. Tractor Hitch |
| B. Pins          |
| C. Safety Clips  |
| D. Drive Belt    |

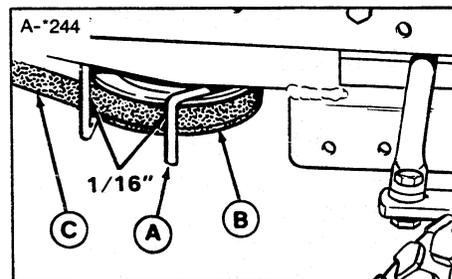


Figure 5. Right-Hand Belt Stop - 42" Mowers

- |               |         |
|---------------|---------|
| A. Belt Stop  | C. Belt |
| B. PTO Pulley |         |

9. Install the clips (C, figure 4) in the pins.
10. Slip the mower drive belt onto the engine PTO pulley loosening belt stops as necessary. The left-hand belt stop is shown in figure 3. The right-hand belt stop for 42" mowers is shown in figure 5. Position belt stops 1/16" from belt.
11. Insert the rear end of the PTO rod in the hole marked "MOW" in the PTO arm (B, figure 6). Insert the spring clip (C).
12. If installing mower for the first time, check the following adjustments.
  - a. Mower belt tension (page 27).
  - b. PTO pulley belt stops (page 27).
  - c. Mower belt stops (page 27).
  - d. Mower levelling (page 28).
  - e. Blade brake (page 30).
  - f. Lift lever (page 31).

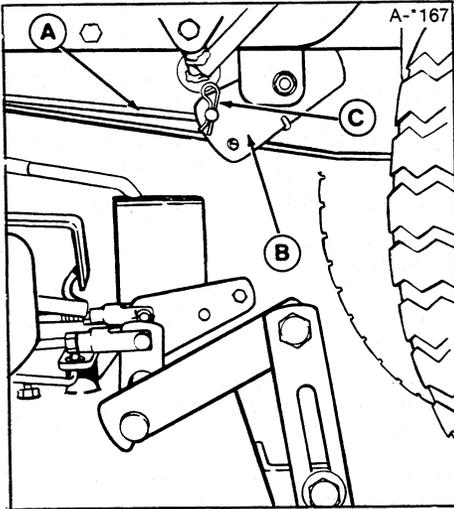


Figure 6. Installing PTO Rod

- A. PTO Rod
- B. Tractor PTO Arm
- C. Spring Clip

## REMOVAL

1. Place mower in lowest cutting height. Lower the lift lever. Disengage the PTO lever.
2. Remove the belt from the PTO pulley, loosening belt stops as necessary.
3. Remove the spring clip (C, figure 6) and pull PTO rod from hole. Reinstall the spring clip in the rod for storage.
4. Unhook the lift chain (C, figure 2) from the clevis (D).
5. Pull the safety clips from the hitch pins. Push the pins out while holding mower hitch up then allow mower to drop down.
6. Turn the tractor wheels as far as they go to the left.
7. Slide the mower out from under the tractor from the right side.

# OPERATION

## CONTROLS

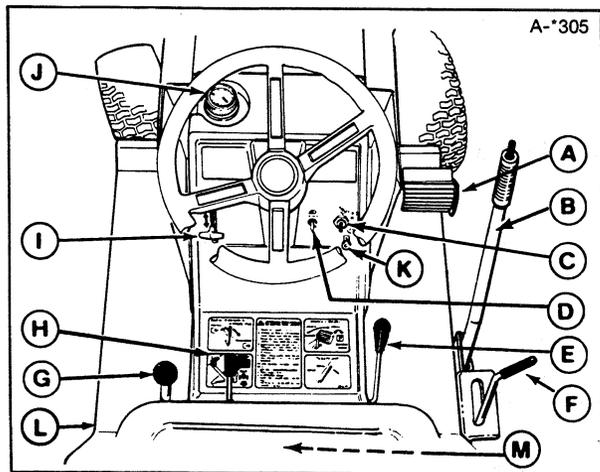


Figure 7. Tractor & Mower Controls

Ref.	Name	Function
A	Clutch-Brake	Disengages tractor clutch when pressed down at least halfway. Applies brake when fully depressed. Engages parking brake when latched over footrest.
B.	Optional Lift Lever	Lifts and holds attachments in transport position (only required with attachment other than mower).
C	Ignition Switch	Operates with key to start, run, or stop engine.
D	Light Switch	Switches headlights on or off.
E	Lift Lever	Lifts and holds mower in transport position.
F	Mower Height Control Lever	Adjusts mower cutting height.
G	PTO (Power Take Off) Lever	Engages and disengages power to attachments. Pull back to disengage.
H	Transmission Control Lever	Controls ground speed and forward/reverse motion. Push toward left to move out of neutral (center) position. Push down to go forward. Pull up to go rearward.
I	Engine Speed Control	Position from SLOW to FAST to control engine speed.
J	Gas Gauge/Cap	Shows amount of gasoline in the tank and serves as tank cap.
K	Choke	Pull out to aid starting engine.
L	Seat Deck Latch	Pull down on latch underneath left foot rest while raising seat deck.
M	Seat Safety Switch	Shuts off engine if operator leaves seat when PTO is engaged and/or hydrostatic control lever is in forward/reverse slot.

## SAFETY INTERLOCK SYSTEM

Your tractor is equipped with a seat switch safety system that will automatically shut the engine off when the operator leaves the seat with PTO engaged or with the transmission lever in gear. The tractor engine will continue to run when the operator leaves the seat if the PTO is disengaged and the transmission is in neutral.

Check the seat switch (A, figure 7B) every fall and spring with the following three tests. Make sure the wiring harness (B) is securely plugged into the switch.



### WARNING

If the tractor does not pass the test, do not operate tractor. See your authorized dealer. Under circumstance should you attempt to defeat the purpose of the safety system.

### Test 1 — Engine should not crank if:

- A. Seat not occupied, or;
- B. Transmission lever out of neutral, or;
- C. PTO engaged.

### Test 2 — Engine should crank if:

- A. Seat is occupied, and;
- B. Transmission lever in neutral, and;
- C. PTO disengaged.

### Test 3 — Engine should shut off if:

- A. Operator rises off seat with transmission in gear or;
- B. Operator rises off seat with PTO engaged.

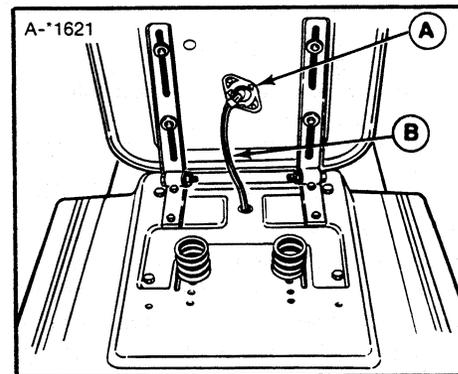


Figure 7B.

- A. Seat Switch
- B. Wiring Harness

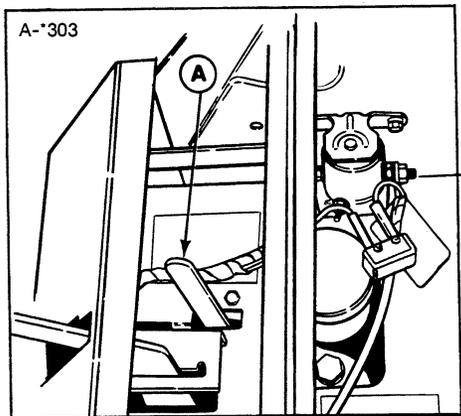


## CAUTION

Do not tow tractor. Transmission damage may result.

## PUSHING THE TRACTOR BY HAND

Never push the tractor faster than walking speed. To push, the transmission must be disengaged. To do this, raise the seat deck to expose the transmission engagement lever (A, figure 7C). Push the lever forward to disengage the transmission. Pull toward left and pull lever back to engage the transmission.



## BEFORE OPERATING

1. Refer to Normal Care Chart and perform any needed care.
2. Clear the work area of any objects which may be caught in or thrown by the attachment.

## STARTING THE ENGINE

1. Seat yourself on tractor seat in operating position. Set the parking brake.
2. Place transmission control lever in NEUTRAL. The lever will snap into NEUTRAL notch when moved to center position.
3. Lift the PTO lever fully back to disengage the attachment.
4. Pull out the choke knob.
5. Insert the key into ignition switch and turn to START. Release when engine starts.
6. Push in the choke knob as engine warms.

Figure 7C.

A. Transmission Engagement Lever

## STARTING & STOPPING OPERATION

1. Start the engine as described in previous procedure.
2. Place the engine speed control lever between 3/4 and full speed. Full engine speed is recommended, especially if mowing thick grass or blowing heavy snow.
3. Release the parking brake by depressing pedal and unlatching from end of footrest.
4. If possible, the first motion should be straight forward or back. Position the front wheels straight ahead.
5. To go forward, move transmission control lever to left to move out of neutral, then press downward. The farther downward you press, the faster forward ground speed.

To go rearward, move transmission control lever to left to move out of neutral, then pull up. The farther upward you pull lever, the faster rearward ground speed.

6. Use the ground speed control lever to select appropriate ground speed for conditions (keep RPM level high). If the terrain is rough, hilly or sloping, drive slowly. You should also drive slowly to cut thick grass or blow heavy snow. On level ground, with light grass or snow, you can use full speed.
7. Use the transmission control lever to slow down for turns or to trim around objects, then increase speed.
8. **To stop**, move the transmission control lever into NEUTRAL position. **For a more rapid stop**, depress the clutch-brake pedal. If you stop by depressing the pedal, move control lever to NEUTRAL before releasing pedal.
9. Before leaving the operator seat:
  - a. Stop tractor motion and engage parking brake.
  - b. Disengage the PTO and lower the attachment.
  - c. Set engine speed control halfway between fast and slow (if tractor backfires when shutting off, move speed control a little higher than halfway). Stopping a hot engine too

fast may cause engine damage. Let engine idle for about a minute. However, do not idle engine for an extended period - it may cause carbon buildup.

- d. Turn key to OFF and remove it.
- e. Place transmission control lever into forward position. This will help prevent accidental starting. The control lever must be in neutral to start.

**WARNING**

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 (8.5°) but less than 30 percent, use rear wheel weights (see your dealer). Select slow ground speed before driving onto slope. Mow up and down the slope, never across the face, use caution when changing directions and **DO NOT STOP OR START.**

**WARNING**

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

**WARNING**

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

## CLUTCH/BRAKE PEDAL OPERATION

Refer to figure 7D. Depressing pedal from position A to B disengages transmission drive. Depressing pedal further from position B to C will also apply tractor brake. Parking brake is applied at position C when pedal is latched over foot rest as shown in figure 7D.

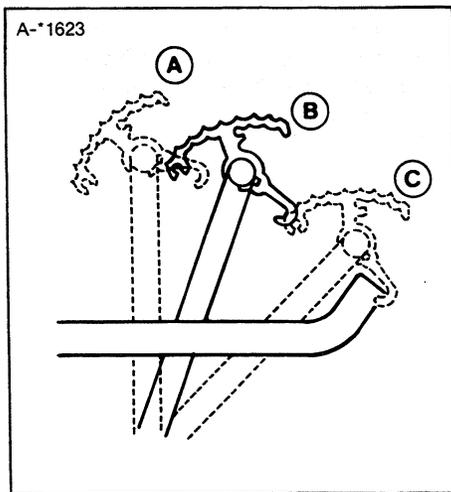


Figure 7D. Brake/Clutch Pedal

## MOWING PATTERN & TIPS

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 will determine 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 clockwise direction around the outside of the area to keep cut grass off fences and walks. The remainder of the mowing should be done in a counterclockwise direction so the clippings are dispersed on the cut area.

Where possible, keep the left side of the mower toward trees, posts, or other obstacles on the first pass around the obstacles to keep hand trimming to a minimum.

On moderate size, frequently mowed lawns where grass is light and dry, it is sometimes practical to mow in a clockwise direction so that clippings are thrown toward the center of the lawn and concentrated for pickup and removal.

Most lawns should be mowed to keep the grass approximately two to three inches (50 to 76 mm) high. Best results are obtained by cutting often and not too short. To help keep a green lawn, never mow more than one third off the height of the grass, or a maximum of one inch (25 mm), in one mowing. For extremely long grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.

On thick, or springy grass or soft ground, the mower rollers sink into the ground giving too low a cut. Adjust the cutting height as necessary. For best appearance, grass should be cut in the afternoon or early evening (in daylight) where it is free of external moisture.

Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.

## Normal Care

### DETERMINE OPERATING TIME

Determining operating time is easily accomplished if the tractor is equipped with an optional hourmeter. If not, multiply the time it takes to do one job by the number of times you've done the job.

### NORMAL CARE SCHEDULE

A schedule for normal care is provided in Table 1.

### RAISING HOOD & SEAT DECK

To raise the hood, grasp both sides of the hood near the dash. Pull sides of hood outward and tilt the hood forward.

To raise the seat deck, position yourself as shown in figure 8. Pull down on the release located underneath the left-hand footrest and raise the seat deck.

Do not close the seat deck with the release lever pulled down.

Care Required	Schedule					
	See	Before First Use	Before Each Use	Every 5-Hours	** Every 25 Hours	Yearly or Every 100 Hours
Check gas gauge	P. 13	•	•			
Check tractor & mower for loose nuts, screws, bolts, oil leaks, etc.		•	•	•		
Check engine oil level	Eng. Manual	•	•	•		
Clean engine & air filter	Eng. Manual				•	
Change engine oil*	Eng. Manual				•	***
Lubricate tractor & mower	P.12,16	•			•	
Check battery fluid	P. 14	•		•	•	
Clean battery & cables	P. 14					•
Sharpen/balance blade	P. 16					•
Inspect spark plugs	Eng. Manual					•
Check fuel filter	P. 14					•
Check tire pressures	P. 15	•			•	
Check transmission fluid	P. 13	•				***

\*Change original engine oil after first 5 hours of operation.  
 \*\*More often in hot (over 85°F; 30°C) weather or dusty operating conditions.  
 \*\*\*If used year round - check in spring & fall

Table 1. Schedule of Normal Care - Tractor & Mower

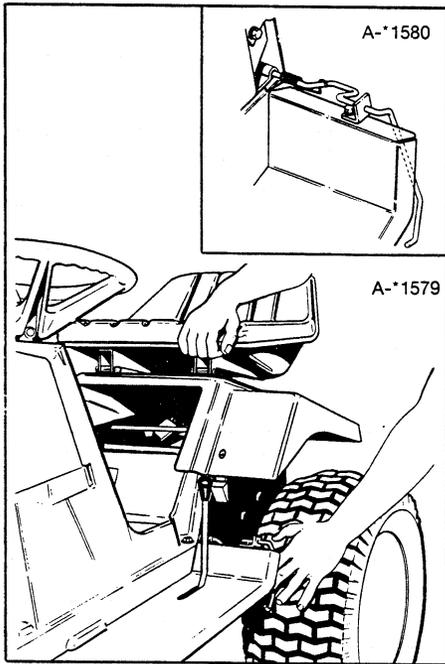


Figure 8. Opening the Seat Deck

### LUBRICATING THE TRACTOR

Lubricate the tractor as shown in figure 9 thru 11. When a grease gun is shown, wipe the fitting clean, apply two or three shots of grease and wipe off excess grease. When an

oil can is shown wipe the area clean, apply a few drops of oil (SAE 30), then wipe up drips or spills. Keep oil off belt and brake pads.

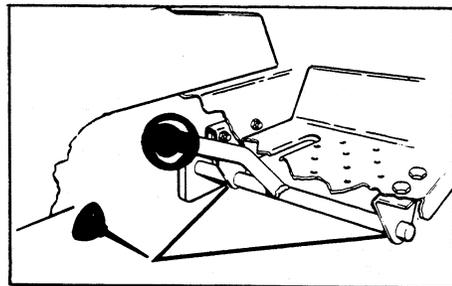


Figure 9. PTO Lever Lubrication

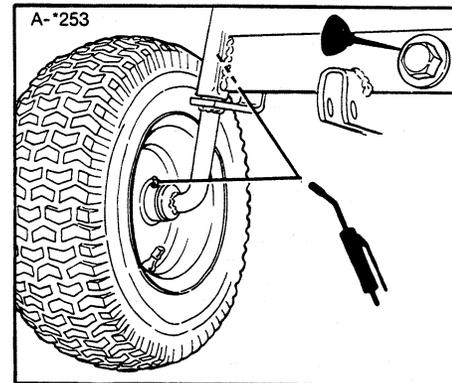


Figure 10. Front Axle Lubrication  
(Two grease fittings on each side)

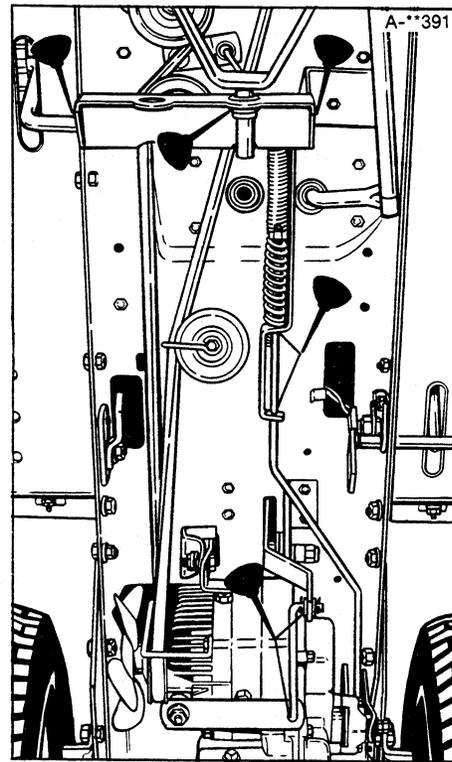


Figure 11. Clutch & Control Rod  
Lubrication (underneath tractor)

## ADJUSTING THE SEAT

Raise the seat deck. While holding the seat, loosen the four capscrews that secure seat to seat deck hinges. Position the seat as desired, then tighten the capscrews.

Seat springs can be adjusted for operator comfort. Move springs forward for lighter operator or toward the rear for heavier operator.

## CHECKING/ADDING GASOLINE

Check the gas gauge/cap to be sure there is enough gasoline to complete the job. To add gasoline, remove the gas gauge/cap. Refer to your engine manual for gasoline recommendations. Install and hand tighten the gas gauge/cap.

## CHECK TRANSMISSION FLUID LEVEL

There are two fluid levels that must be checked. The Hydrostatic Transmission and the Differential fluid level. Proceed as follows.

### Hydrostatic Fluid Level

1. Allow tractor to cool after operation. Fluid must be cool for an accurate check.
2. Raise the seat deck.
3. The fluid level is visible in the reservoir (figure 12) without removing cap. The level should be at COLD level mark. If not, go to step 4.

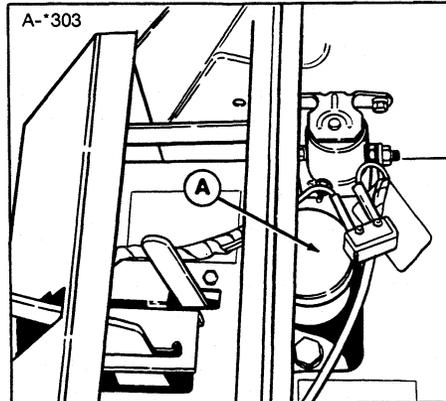


Figure 12. Hydrostatic Reservoir

A. Reservoir

4. Remove the reservoir cap and add to cold level mark. Ask your dealer or refer to Common Replacement Parts section of this manual for recommended fluid. If the existing oil is black or milky, see your dealer to determine cause.
5. It will take a while for the oil to seep thru a filter screen into the transmission. Check the level again after operating tractor a few times. If level is consistently low, see your dealer to check for leaks.

### Differential Fluid Level

1. The check plug is located on the front of the differential. For this reason, it would be easier to check the fluid in the spring before installing the mower or in the fall after removing the mower.
2. Remove the check plug (A, figure 1) by turning counterclockwise. If the level is at the bottom of the hole, the fluid level is OK. If not, add oil. Ask your dealer or refer to Common Replacement Parts section of this manual for recommended oil.
3. Reinstall the check plug.

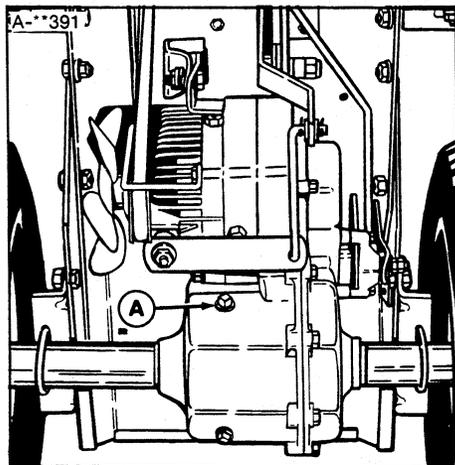


Figure 13. Differential Check Plug

A. Check Plug (viewed from underneath)

### CHECKING THE FUEL FILTER



#### WARNING

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

The fuel filter 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 by reclamping with hose clamps. See warning at beginning of procedure.

### CHECKING BATTERY FLUID

1. Raise the seat.
2. Remove filler caps, one at a time.
3. Fluid must be even with split ring full mark (figure 14). If not, add distilled water.
4. Reinstall filler caps.

### CLEANING THE BATTERY & CABLES



#### WARNING

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



#### 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.

1. Disconnect the cables from the battery, negative cable first (figure 14).

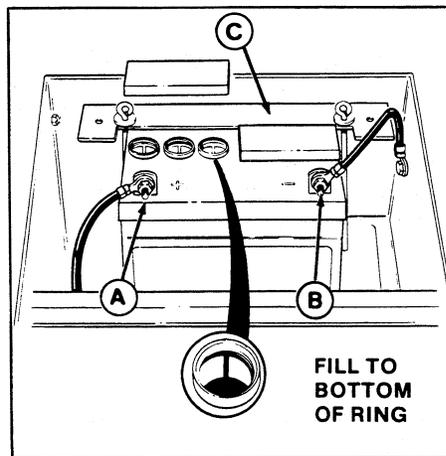


Figure 14. Battery

A. Positive Terminal  
B. Negative Terminal

C. Battery Clamp

2. Remove the battery clamp, then remove the battery.
3. Scrub the battery, cables, and battery compartment with baking soda and water.
4. Clean the battery terminals and cable clamps with a wire brush.
5. Reinstall battery and clamp (figure 14).
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with grease or petroleum jelly.

### CHECKING TIRE PRESSURE

Check air pressure of all four tires. Front tires should be 12 to 15 psi (82 to 103 kPa). Rear tires should be 6 to 8 psi (41 to 55 kPa). A gauge with one-pound markings will be necessary for an accurate check.

### TRACTOR NORMAL STORAGE

Clean all grass and dirt from the mower. To protect your tractor, store it in an enclosed dry area. Do not store it in an enclosure where fumes from the fuel tank could reach an open flame. Clean the seat with a vinyl cleaner.

To store your tractor in a cold area between winter snow removal jobs, 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.

### TRACTOR OFF-SEASON STORAGE

When the tractor is to be stored for two months or longer, take precautions as follows:



#### WARNING

**Gasoline is highly flammable. Keep open flame or spark away from gasoline and fuel tank. Never store tractor where gasoline fumes may reach an open flame or spark.**

1. To empty or prepare fuel tank:
  - a. Run tractor engine until it stops from lack of fuel, or;
  - b. Use a gasoline stabilizer. This additive, available from your dealer, prevents formation of gum and varnish for up to one year. With the additive, fuel may remain in your tank for long periods.

2. Change engine oil while the engine is still warm. Record the type and weight of oil put in crankcase.
3. Remove spark plugs. Pour one ounce (30 ml) of SAE 30 oil into engine through spark plug holes. Crank engine a few times to distribute oil and then reinstall the spark plugs.
4. Lubricate the tractor.
5. Check battery fluid level. Battery life will be extended if it is removed and stored in a cool, dry place, and fully charged.
6. Clean tractor thoroughly. Coat all exposed bare metal parts with a good quality paint (obtainable from your dealer) or a light film of grease or oil.

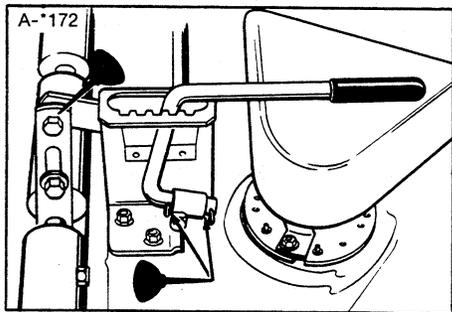
### STARTING AFTER STORAGE

1. Replace battery, if removed. Be sure terminals and clamps are clean.
2. Remove the spark plug and wipe dry. Crank engine a few times to blow excess oil out of plug hole. Reinstall the plug.
3. Fill fuel tank with fresh gasoline (unless a fuel stabilizer was used).

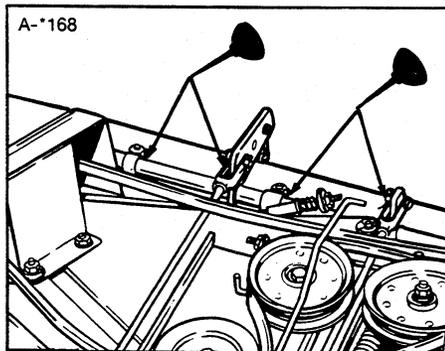
4. Clean engine fins and air filter. (See engine manual.)
5. Check fluid levels and tire pressure. (See Normal Care Chart.)
6. Start the engine outdoors. Do not run engine at high speeds immediately after starting.

## LUBRICATING THE MOWER

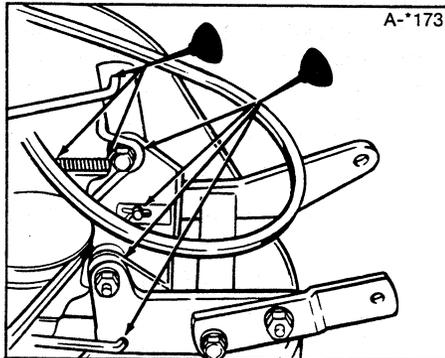
Lubricate the mower as shown in figures 15, 16, 17 and arbor (under deck). Use an oil can with medium weight (SAE 30) oil. Brush and wipe dirt and grass from the area before applying oil. Wipe up drips and spills. Keep oil off belts and pulleys.



**Figure 15. Lubricate height control lever & point where roller bar contacts bracket.**



**Figure 16. Lubricate clevises & points where roller bar contacts brackets.**



**Figure 17. Lubricate hitch, PTO rod & PTO arm.**

## SHARPENING & BALANCING THE BLADES

1. Remove the mower from the tractor.
2. Position the mower as in figure 18. Secure the mower so it will not fall or slide.



### WARNING

**Do not handle the mower blades with bare hands. Avoid touching the cutting edge. Careless or improper handling of blades may result in serious injury.**

3. Remove any dirt or foreign matter from inside the mower deck and blade.
4. To remove the blade for sharpening use a wooden block to hold blade while removing the capscrew (figure 18).
5. 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.
6. Check and balance blade. Use a balancing machine or the fixture shown in figure 19. Center the blade on a nail lubricated with a drop of oil. A bal-

anced blade will remain level. File material off heavier end of blade until it is balanced.

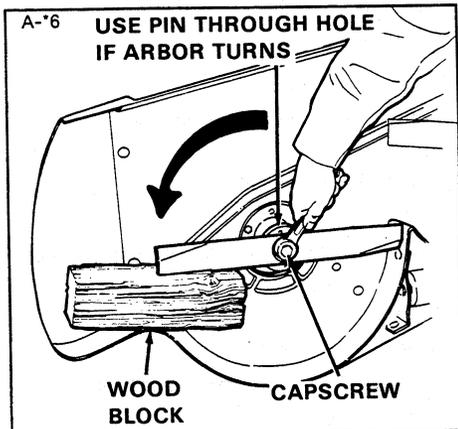


Figure 18. Removing Blade

7. Reinstall each blade with the tabs pointing up toward deck and secure with a capscrew, cup washer, and spline washer. Be sure all splines are aligned and washer is flush against blade. Use a wooden block to prevent blade rotation and torque capscrew to 55 ft. lbs. (74 N.m). (figure 20).

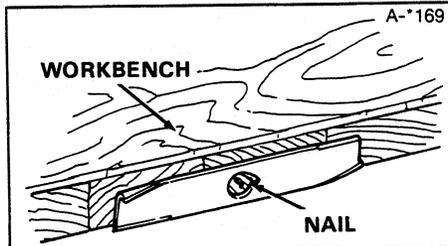


Figure 19. Balancing Blade

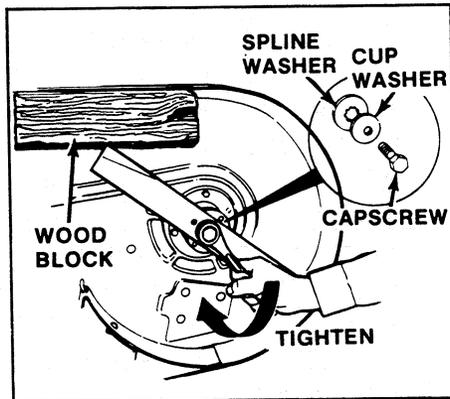


Figure 20. Installing Blade



### WARNING

Blade mounting capscrews must be installed with the cup washer and spline washer and then securely tightened. Torque blade mounting capscrews to 55 ft. lbs. (74 N.m).

### MOWER OFF-SEASON STORAGE

To protect your mower, store it in an enclosed dry area. To prepare the mower for off-season storage perform the following.

1. Remove mower from tractor if tractor is to be used without mower. (See Mower Installation and Removal section).
2. Clean top and underside of mower to remove all grass and dirt.
3. Coat all bare metal surfaces with a good quality paint (available from your dealer) or a light coat of oil to prevent rusting.
4. Lubricate mower (page 16).
5. Check, sharpen and balance the mower blades (page 16).
6. The belt should be stored in a cool, dark place away from sunlight or any heat source.

# Troubleshooting & Repair

## CONTENT OF SECTION

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.



### WARNING

To avoid serious injury, perform maintenance on the tractor or mower only when the engine is stopped and the parking brake is engaged. Always remove the ignition key and disconnect spark plug wire and fasten away from the plug before beginning the maintenance to prevent accidental starting of the engine.

## TROUBLESHOOTING PROCEDURES

Troubleshooting procedures are provided in Table 2. To use these procedures, first locate the problem description that best describes the trouble that you have encountered. Check the possible causes one at a time in the order that they are listed.

### 1. Engine will not start.

- A. Transmission control lever not in NEUTRAL. Move into NEUTRAL.
- B. PTO clutch lever not disengaged. Disengage fully.
- C. Operator not seated. Operator must be in seat.
- D. Out of fuel. Refill fuel tank.
- E. Engine flooded. Push in choke knob & attempt to start.
- F. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective. See your dealer.
- G. Battery terminals require cleaning. See Normal Care section.
- H. Battery discharged or dead. Recharge or replace.
- I. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
- J. Solenoid or starter motor faulty. Repair or replace.
- K. Safety interlock switch faulty. Replace if needed. See your dealer.
- L. Spark plugs faulty, fouled, or incorrectly gapped. Clean & gap or replace.
- M. Water in fuel tank. Drain fuel & refill with fresh fuel.
- N. Old stale gas. Drain fuel & replace with fresh fuel.

### 2. Engine starts hard or runs poorly.

- A. Fuel mixture too rich. Push choke knob in. If problem still exists, clean air filter.
- B. Carburetor adjusted incorrectly. See your engine manual.
- C. Spark plugs faulty, fouled or incorrectly gapped. Clean and gap or replace.

### 3. Engine knocks.

- A. Low oil level. Check/add oil as required.
- B. Using wrong grade oil. See Normal Care section.

## Table 2. Troubleshooting

---

**4. Excessive oil consumption.**

- A. Engine running too hot. Clean engine fins, blower screen and air cleaner. See Normal Care section.
  - B. Using wrong weight of oil. See Normal Care section.
  - C. Too much oil in crankcase. Drain excessive oil.
- 

**5. Engine exhaust is black or smoky.**

- A. Dirty air filter. Clean air filter.
  - B. Choke not fully open. Push choke knob in and be sure choke opens fully. If problem still exists, check carburetor adjustment.
- 

**6. Engine runs, but tractor will not drive or lacks power.**

- A. Check fluid levels (transmission).
  - B. Drive belt slips. See problem and cause below.
  - C. Transmission control lever in NEUTRAL. Move into forward or reverse.
- 

**7. Drive belt slips.**

- A. Pulleys or belt greasy or oily. Clean as required.
  - B. Belt stretched or worn. Replace with correct belt.
  - C. Clutch rod binding in guide. Oil clutch rod. See Tractor Lubrication.
- 

**8. Brake will not hold.**

- A. Brake is incorrectly adjusted. See Adjustment section.
- B. Brake pads worn & require replacement. See your dealer.

**9. Tractor handles poorly.**

- A. Steering linkage is loose. Check and tighten any loose connections.
  - B. Improper tire inflation. Check and correct.
  - C. Wheels are spinning and slipping. Use weights to provide additional stability and traction.
  - D. Moving too fast on slopes. Reduce speed.
- 

**10. Main tractor drive belt does not stop when clutch-brake pedal is depressed.**

- A. Belt stops out of adjustment. See Adjustments section.
  - B. Linkage not operating properly.
- 

**11. Tractor creeps forward or reverse when transmission control lever is in neutral slot.**

- A. Transmission control lever quadrant out of adjustment. See Adjustment section.
- 

**TROUBLESHOOTING (MOWER)**

---

**1. Mower will not raise.**

Lift chain not attached or broken. Attach or repair.

---

**2. Uneven cut.**

- A. Mower not leveled properly. See leveling adjustment in Mower Adjustment section.
  - B. Tractor tires not inflated equally or properly.
- 

**3. Mower cut is rough looking.**

- A. Engine speed too slow. Set for three-fourths to full speed.
- B. Tractor ground speed too fast. Use lower gear.
- C. Front tires are over-inflated

**Table 2. Troubleshooting (Cont'd.)**

### 3. Mower cut is rough looking (cont'd)

- D. Blades dull & require sharpening. See Normal Care section.
  - E. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary. Readjust belt tension.
- 

### 4. Engine stalls easily with mower engaged.

- A. Tractor ground speed too fast. Use lower gear.
  - B. Engine speed too slow. Set for three-fourths to full speed.
  - C. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.
  - D. Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.
- 

### 5. Excessive mower vibration.

- A. Blade mounting screws are loose. Torque to 50-70 ft. lbs. (67-95 N.m). See Normal Care section.
  - B. Mower blades, arbors, or pulleys are bent. Check and replace as necessary.
  - C. Mower blades are out of balance. Remove, sharpen, and balance blades. See Normal Care section.
- 

### 6. Excessive belt breakage.

- A. Belt tension too tight. Readjust belt tension.
  - B. Bent or rough pulleys. Repair or replace.
  - C. Using incorrect belt. See your dealer.
- 

### 7. Mower drive belt slips or fails to drive.

- A. Mower drive belt out of adjustment. See Adjustment section.
- B. Mower drive belt broken. Replace belt.

## BATTERY REPLACEMENT

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 charging system is not working properly or that the battery has lost its charge during storage. First, "Clean Battery & Cables" and "Check Battery Fluid Level". Have the battery recharged if necessary. If there is any doubt about the cause of the problem, see your dealer. If you must replace the battery, remove and install the battery as described in "Clean Battery & Cables".

Table 2. Troubleshooting (Cont'd.)

## **JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY**

Jump starting is not recommended. First, check the battery as described in "Battery Replacement" above. If jump starting must be done, follow these instructions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow exactly procedures one through five, being careful not to cause sparks.



### **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.**

1. Set parking brake and place transmission in "NEUTRAL". Turn off lights and other electrical loads.

2. Remove vent caps from both the booster and the discharged batteries. Lay a cloth over vent wells on each battery. These two actions help reduce the explosion hazard always present in either battery when connecting a "live" battery to a "dead" battery.
3. Attach one end of one jumper cable to the positive terminal of the booster battery (identified by a red color, "+" or "P" on the battery case, post or clamp) and the other end of the same cable to positive terminal of discharged battery. DO NOT permit vehicles to touch each other, as this could establish a ground connection.
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the booster battery, and the other end to a bare metal surface on the frame of your tractor AWAY FROM the battery compartment (do not connect directly to negative post of dead battery). Take care that clamps from one cable do not inadvertently touch the clamps on the other cable. Do not lean over the battery when making this connection.

5. The tractor with the discharged battery should now start.

Reverse the jump starting procedure exactly to remove the jumper cables. Then reinstall the vent caps and throw the cloths away as they may have corrosive acid on them.



### **WARNING**

**Any procedure other than the above could result in: (1) personal injury caused by electrolyte squirting out of the battery vents, (2) personal injury or property damage due to battery explosion, (3) damage to the charging system of the booster vehicle or 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 of 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.**

## TRACTOR DRIVE BELT REPLACEMENT



### CAUTION

To avoid damaging belt, do not pry over pulleys.

1. Engage the parking brake by latching the pedal over end of footrest.
2. Loosen the PTO pulley belt stops (G, figure 21).
3. Either remove the mower, or slip the mower belt off the PTO pulley (F).
4. Remove the tractor belt from the engine pulley and allow to rest on top of the PTO pulley.
5. Loosen the belt stop on front idler pulley (B) and remove the belt.
6. Remove the idler pulley (D) by removing capscrew and nut.
7. Remove the belt guide (I).
8. Remove the belt from the transmission pulley. Rotate fan with belt to remove belt.
9. Remove the belt from PTO pulley and tractor.

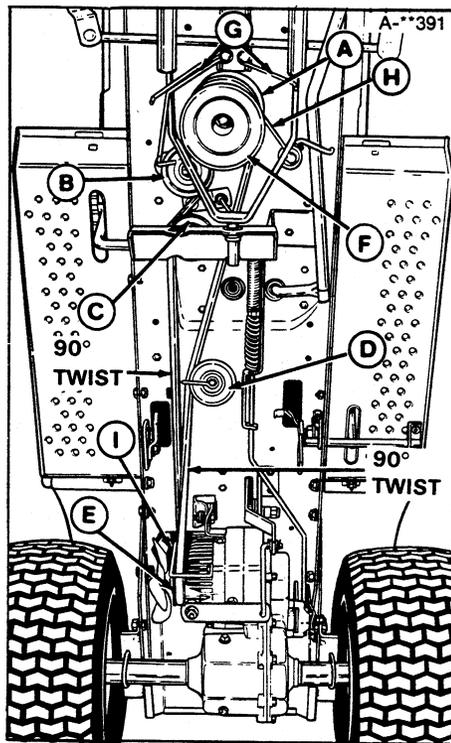


Figure 21. Tractor seen from underneath

10. Install the new belt by reversing the procedure. Be sure the V side of the belt is against all the pulleys except the flat idler pulleys (B and D). There are only two twists in the belt, as shown in figure 21. The belt diagram is shown in figure 22.
11. Refer to figure 23 to reinstall the middle idler pulley. Position flat side of belt against the pulley, position the belt guide (E, figure 23) and hardware, and install as shown. Make sure pulley can rotate freely after installation.
12. Perform "Tractor Brake Adjustment" and "Engine Pulley Belt Stops Adjustment" (page 25).

- A. Engine Pulley
- B. Idler Pulley, Flat
- C. Idler Pulley
- D. Idler Pulley, Flat
- E. Transmission Pulley
- F. PTO Pulley
- G. PTO Pulley Belt Stops
- H. Belt Stops, Engine Pulley
- I. Belt Guide

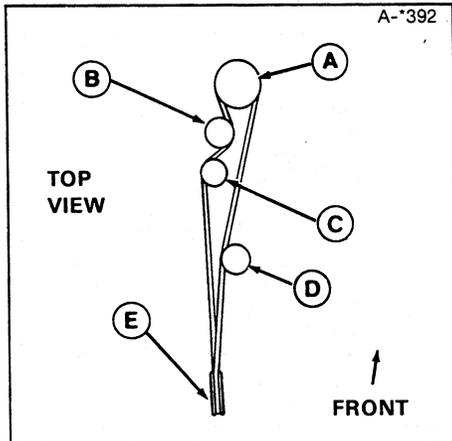


Figure 22. Belt Diagram

- A. Engine Pulley
- B. Idler Pulley
- C. Idler Pulley
- D. Idler Pulley, Middle
- E. Transmission Pulley

**NOTE**

Reference letters in Figure 22 are same as Figure 21.

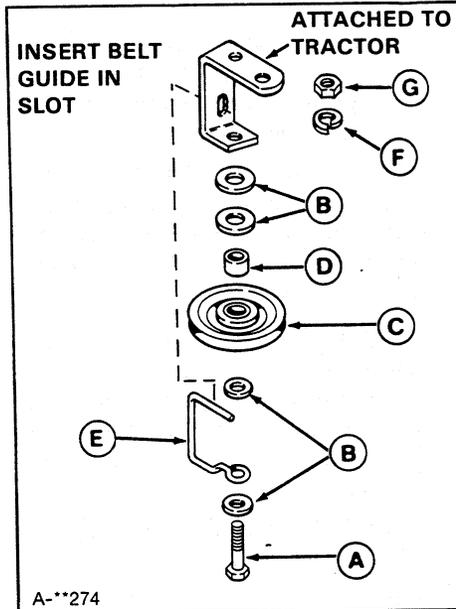


Figure 23.

- A. Capscrew
- B. Washer
- C. Pulley
- D. Spacer
- E. Belt Guide
- F. Lockwasher
- G. Nut

**BELT REPLACEMENT - 42" & 48" Mower**

1. Remove the mower from the tractor.
2. Loosen the left belt stop (D, figure 24) enough to slip the belt off the pulley. Remove the right belt stop (A).

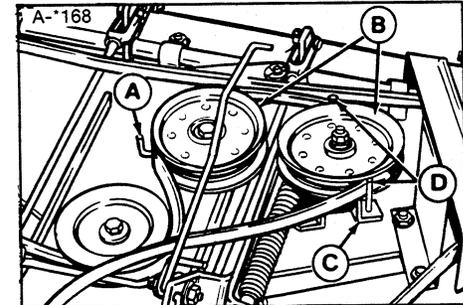


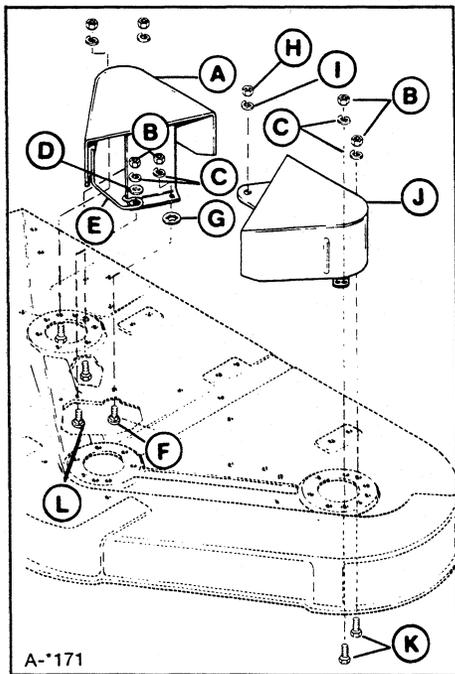
Figure 24. Mower Belt Stops

- A. Right Belt Stop
- B. Idler Pulleys
- C. Idler Pulley Bracket
- D. Left Belt Stop

**NOTE**

For 48" mower, go to step. 4.

3. **42" Mower Only.** Remove the right arbor cover by removing two carriage bolts in front and two capscrews in rear (see figure 25). Remove the nut (H) and



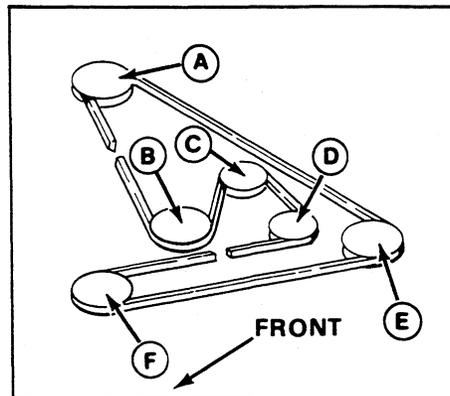
**Figure 25. Arbor Covers**

- A. Arbor Cover, Right
- B. Nut, 5/16
- C. Lockwasher, 5/16
- D. Plain Washer, 11/32
- E. Belt Stop
- F. Bolt, Carriage, 5/16 x 3/4

lockwasher (I) which secures left arbor cover to the idler pulley. Remove the two capscrews (K) which secure the rear of the left arbor cover.

4. **48" Mower Only.** Remove both arbor covers by removing two carriage bolts in front and two capscrews in back. See figure 22. Remove attaching hardware.
5. Remove the old belt.
6. Install the new belt on the pulleys. The belt pattern is shown in figure 26. Notice that the "V" side of belt drive the V-pulleys and flat side of belt rides on the flat idler pulleys. Be sure there are not twists in the belt.
7. Reinstall the arbor covers (step 3) and belt stop (step 2).
8. Reinstall the mower on the tractor (see Mower Installation). Check mower drive belt tension, belt stop adjustments, and blade brake as described in

- G. Push Nut, 5/16
- H. Nut, 5/16
- I. Lockwasher, 5/16
- J. Arbor Cover, Left
- K. Capscrew, 5/16 x 3/4
- L. Bolt, Carriage, 5/16 x 1



**Figure 26. Belt Pattern**

- A. V-Pulley, Right Arbor
- B. V-Pulley, Front Arbor
- C. Flat Idler Pulley
- D. Flat Idler Pulley
- E. V-Pulley, Left Arbor
- F. Engine PTO Pulley

Adjustments section. After about two hours operation recheck mower belt tension adjustment and blade brake adjustment.

## Adjustments

### WARNING

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

### WARNING

Disconnect the battery cables, negative cable first before performing adjustments. If this is not done, the electrical circuit can easily be shorted to the frame by a tool, which could cause sparks or electrical shock.

## TRACTOR BRAKE ADJUSTMENT

1. Release the parking brake.
2. Put a feeler gauge just behind brake disc (figure 27). Clearance between disc and pad should be 0.010 inch (0.254 mm). If not, tighten or loosen the adjustment nut (B) to achieve correct dimension. Some units are equipped with two nuts. If so, loosen the outer nut, adjust the inner nut as necessary, then tighten outer nut.

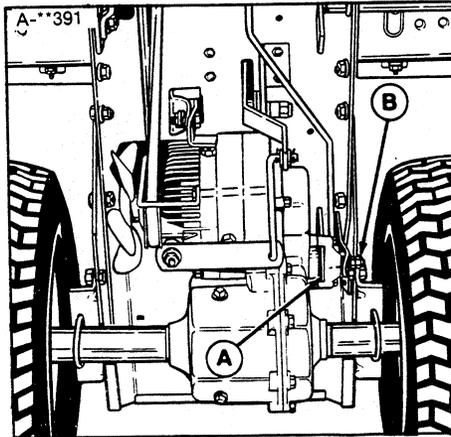


Figure 27. Brake Adjustment

- A. Insert Feeler Gauge
- B. Adjustment Nut

3. With the rod guide (A, figure 28) on brake rod as far rearward as slot will allow, the nut (D) should be snug against spring (C), but spring should still be able to rotate. Tighten or loosen nut as necessary to achieve this.

## ENGINE PULLEY BELT STOPS

Adjust the two belt stops (A, figure 29) so there is 1/8" between belt stops and belt.

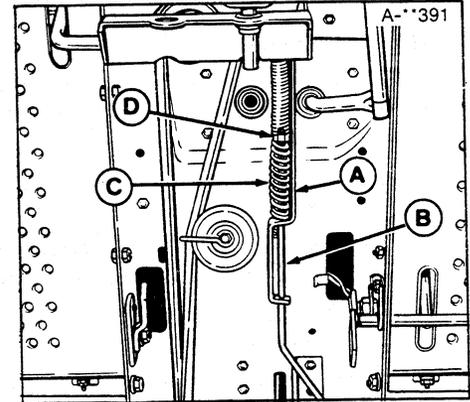


Figure 28. Brake Adjustment

- A. Rod Guide
- B. Brake Rod
- C. Spring
- D. Nut

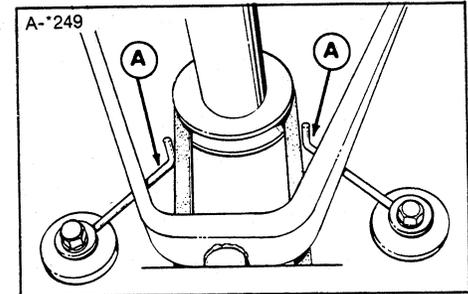


Figure 29. Engine Pulley Belt Stops

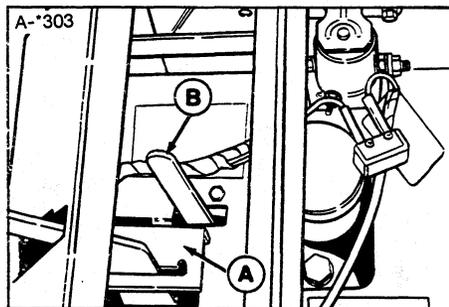
## NEUTRAL ADJUSTMENT

If the tractor creeps forward or back with transmission in neutral notch, adjust as follows.

1. Seat yourself in the operator's seat and start the engine.
2. Move the lever to position where tractor remains stationary. This is neutral position.
3. Stop the engine.
4. Disconnect the battery cables to avoid causing short circuit or sparks with tools.
5. The control lever quadrant (A, figure 30) is mounted with slotted holes so it can be adjusted. Loosen the two self-tapping screws and move the quadrant so the lever is in neutral notch. Then tighten the two screws.
6. Connect the battery cables.
7. Lower the seat deck. Start the engine to check again. If the tractor still creeps in neutral, repeat the procedure to adjust.

## TRANSMISSION CONTROL LEVER

If lever operates too hard or loose, it can be adjusted. Loosen or tighten the nut (B,



**Figure 30. Control Lever Quadrant**

**A. Quadrant**

**B. Transmission Engagement Lever**

figure 31) to loosen or tighten the lever. Some models are equipped with setscrews (C) which must be loosened to adjust nut then retightened.

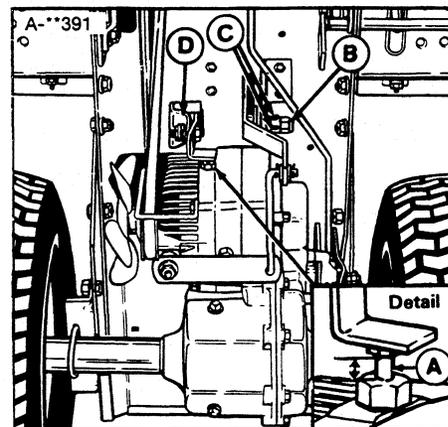
## TRANSMISSION ENGAGEMENT LEVER

If transmission engagement lever (under seat) does not work properly, check the adjustment as follows.

1. Release the parking brake.
2. Place the transmission control lever in NEUTRAL.
3. Place the transmission engagement lever (B, figure 30) in forward position (disengaged position).

4. Locate the plunger (A, figure 31) on front of the transmission which is operated by the lever. Check the clearance between the plunger and the fitting as shown in the detail in figure 31. It should be 0.060 inch to 0.125 inch.

5. To adjust, loosen the engagement lever bracket (D) screws and move to achieve the 0.060 to 0.125 inch dimension. Tighten the screws.



**Figure 31. Engagement Lever Adjustment**

**A. Plunger**

**B. Nut**

**C. Setscrew (Some models)**

**D. Bracket**

## MOWER ADJUSTMENTS

### Mower Drive Belt Tension Adjustment

If the mower belt slips or fails to drive, the mower belt tension may need adjustment. To check, proceed as follows.

1. Place the mower in high cut, using height control lever. Place the PTO lever in engaged position.
2. Measure the distance between the PTO rod guide (A, figure 32) and the set collar (B). For the 42" mower, the measurement should be one inch (25.4 mm).
3. Place the PTO lever in disengaged position.
4. Loosen the setscrew in the set collar (B). Move the rod (G) forward to increase gap, or backward to decrease gap. Retighten the setscrew.
5. Repeat the adjustment as necessary until the distance measures as described in step 2 with the PTO lever in engaged position.
6. Check the adjustments of the PTO pulley belt stops, the mower belt stops, and the blade brakes.

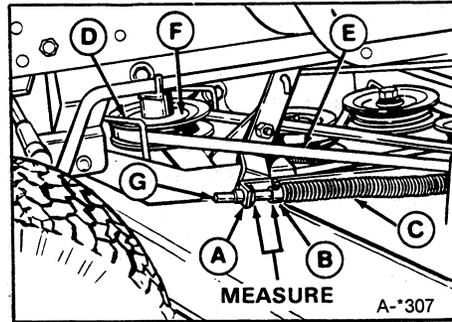


Figure 32. Mower Belt Adjustment

- |               |               |
|---------------|---------------|
| A. Rod Guide  | E. Belt       |
| B. Set Collar | F. PTO Pulley |
| C. Spring     | G. Rod        |
| D. Belt Stop  |               |

### PTO Pulley Belt Stops Adjustment

There are two belt stops at the PTO pulley: one on the left (D, figure 32) and one on the right (figure 33). With the PTO lever engaged, measure the distance between the belt stop and belt. There should be 1/16 inch (1.5 mm) clearance between each belt stop and the belt. To adjust a belt stop, loosen its mounting capscrew, move the belt stop, and retighten the capscrew. Recheck the measurement. If a 1/16 inch clearance

cannot be achieved without touching the pulley, place belt stop as close as possible without touching pulley.

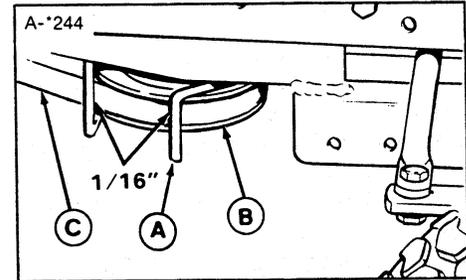


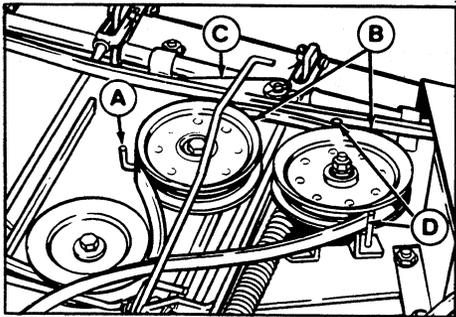
Figure 33. Right Hand Belt Stop, PTO Pulley - 42" Mower

- |              |
|--------------|
| A. Belt Stop |
| B. Pulley    |
| C. Belt      |

## Mower Belt Stops

**Right Idler Pulley Belt Stop.** Make sure the long side of the right belt stop (A, figure 34) is inserted in idler pivot bracket slot (C). There is no adjustment.

**Left Idler Pulley Belt Stop.** Make sure the belt stop (D) is level with the pulley. If the belt stop is level, each side will be an equal distance from the belt. To reposition the belt stop, loosen the mounting capscrew on the bracket underneath the pulley. Retighten hardware securely.



**Figure 34. Mower Belt Stops**

- A. Right Belt Stop    C. Idler Pivot Bracket  
B. Idler Pulleys    D. Left Belt Stop

## Mower Levelling Side-To-Side



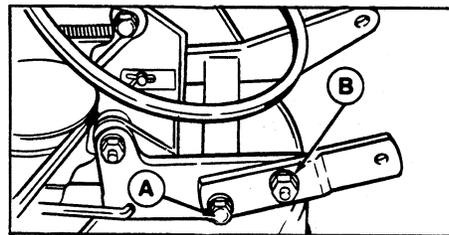
### WARNING

To avoid accidental starting during levelling check, remove the ignition key and remove both spark plug wires and fasten them away from the spark plugs.

### NOTE

The purpose of levelling the mower is to achieve an even grass cut. Remember that improper or unequal tire pressure will cause an uneven cut. Also, different terrain may require different side-to-side adjustments. If you don't achieve an even cut with the mower level, try raising one side slightly higher.

1. Tractor and mower must be on a level surface. The tires must point straight forward.
2. Place the mower in highest cutting position and place the mower lift lever in the lowered position.

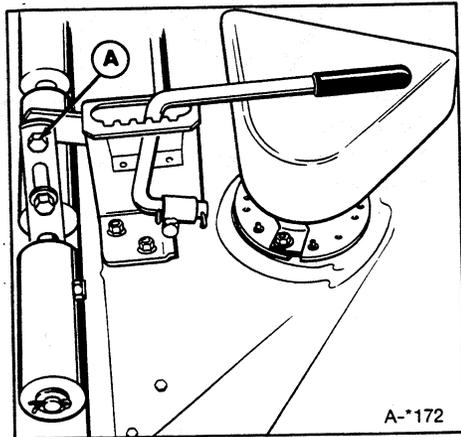


**Figure 35. Mower Hitch (shown removed from tractor)**

- A. Cap screws    B. Flange Nuts

3. Disengage the mower PTO and position the blades so they are pointing side-to-side.
4. Engage the PTO.
5. Measure the distance from the outside tips of the blade to the ground. If the difference between the two measurements is less than 1/8 inch (3 mm), the mower is level. If not, proceed with next steps.
6. Loosen the cap screw (A, figure 35) and flange nut (B) in the right mower hitch.

7. Loosen the shoulder bolt (A, figure 36) and raise or lower mower as necessary to level it. Retighten the shoulder bolt and torque to 40 ft. lbs.
8. Retighten the capscrew and flange nut (B, figure 35). Torque capscrew (A) to 50 ft. lbs. Torque nut (B) to 65 ft. lbs.
9. Check the measurements and readjust as necessary.
10. Check Mower Levelling, Front-to-Back, as described in the following procedure.



**Figure 36. Shoulder Bolt**

**A. Shoulder Bolt**

**Mower Levelling, Front-To-Back - 42" Mower**

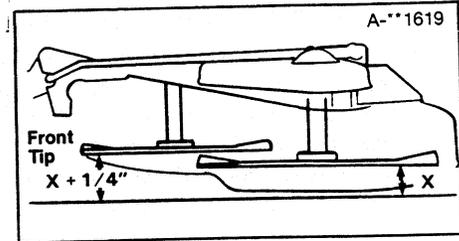


**WARNING**

**To avoid accidental starting during leveling check, remove the ignition key and then remove both plug wires and fasten them away from the spark plugs.**

1. Place tractor and mower on a level surface. Check side-to-side adjustment first.
2. Place the mower in the highest cutting position, and place the mower lift lever in the lowered position. The front tires must point straight forward.
3. Arrange the blades so that they are pointing forward and back, parallel with the tractor. Engage the mower PTO.
4. Measure the distance from the front tip of the center blade to the ground, and note that measurement. (See figure 37).

5. Measure the distance to the ground from the rear tips of the left and right blades. Compare these measurements with the measurement from the front tip of the center blade. The front tip of the center blade should be 1/4 inch (6 mm) higher than the rear tips of the side blades (figure 37).

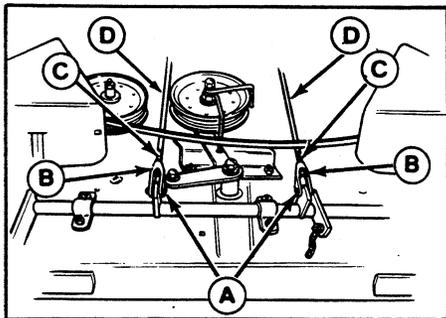


**Figure 37. Levelling Mower**

**NOTE**

It will be easier to make adjustments with mower in lower cutting position. To recheck measurements, reposition mower in highest cutting position.

6. If adjustment is needed, remove the two pins (A, figure 38) by removing the cotter pins. Loosen the jam nuts (C).
7. Turn both turnbuckles the same number of turns, shortening the bail arms to raise the front of the mower and lengthening the bail arms to lower the front of the mower. (One full turn of the eyebolt will equal about 1/8 inch.)
8. Replace pins through turnbuckles and height adjustment arm and recheck measurements. When the proper measurement is reached, install new cotter pins through the pins and tighten the jam nuts to the turnbuckles.

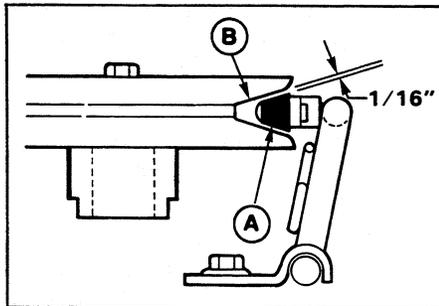


**Figure 38. Turnbuckles**

- A. Pins
- B. Turnbuckles
- C. Jam Nuts
- D. Bail Arms

## Blade Brake Adjustment

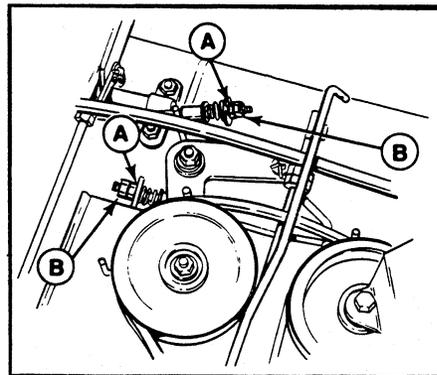
1. Place tractor on a level surface and engage the parking brake.
2. Remove the left and right arbor housings as described under "Mower Drive Belt Replacement" (see page 23).
3. Engage the PTO lever. Be sure that mower drive belt tension is correctly adjusted (see page 27).
4. Inspect the brake pad (A, figure 39) to V-pulley (B) clearance. With PTO engaged, clearance should be 1/16 inch as shown in figure 39.



**Figure 39.**

- A. Brake Pad
- B. V-Pulley

5. If adjustment is required, turn adjusting nuts (A, figure 40) until proper clearance is reached. Tighten jamnuts (B).

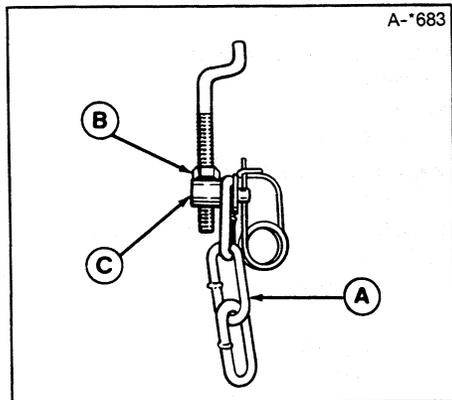


**Figure 40.**

- A. Blade Brake Adjustment Nuts
- B. Jamnuts

**LIFT LEVER**

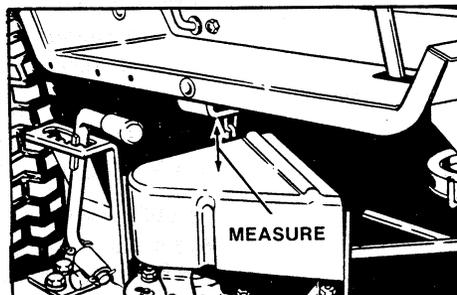
1. Place the mower in low cut position. Using the lift lever, raise the mower.
2. Measure the distance between top of pulley cover and bottom of upstop bracket (figure 42). If small lift lever (E, figure 7) is used, the measurement should be 2". If large lift lever (B, figure 7) is used, the measurement should be 1-13/16".



**Figure 41. Lift Assembly - Large Lift Lever**

A. Chain    B. Nut    C. Trunnion

3. To adjust, disconnect trunnion (C, figure 41) from chain. Loosen the nut, and turn trunnion to raise or lower mower. Tighten nut when measurement is correct.



**Figure 42. Measurement - 42" Mower**

---

## Specifications

### BASIC ENGINE

**Make:** Briggs & Stratton - 4 cycle, air cooled, I/C

**Model:** See engine ID plate.

**Type:** See engine ID plate

**Horsepower:** 5212.5: 12.5 HP @ 3600 RPM\*  
5216: 16 HP @ 3600 RPM\*

**Cylinder:** 2 horizontally opposed

**Bore & Stroke:** 3.44 x 2.16 inches (87 x 52 mm)

**Displacement:** 40 cu. in. (655 cc)

**Crankshaft:** Vertical

**Battery:** 12 volt, 39 amp. hour

**Governor:** Mechanical, full throttle - no load setting  
@ 3400  $\pm$  100 rpm; idle speed @ 1350  $\pm$  100 rpm

**Crankcase Capacity:** See engine manual

**Ignition:** Magneton

**Charging:** Unregulated 3-amp DC charging circuit

**Air Cleaner:** Oil foam with reusable polyurethane element

**Fuel Tank:** 2.2 gallons (8.3 liters) of "regular" grade leaded  
or unleaded gasoline.

**Starter:** 12 volt electric gear drive

\*Engine Mfg's. Rating

### TRANSMISSION

**Type:** Belt drive to hydrostatic transmission

**Differential:** Gear reduction unit with bevel gears.

**Ground speeds @ 3400 rpm:**

**Forward:** 0 - 4.75 mph

**Reverse:** 0 - 3.00 mph

**DIMENSIONS & WEIGHT (Mfg. No. 1690881, 1691033,  
1690936, 1691235, 1691473, 1691362)**

**Height (at steering wheel):** 41 in. (1040 mm)

**Width:** 35.25 in. (895.35 mm)

**Length:** 66.25 in. (1680 mm)

**Clearance - Front Axle:** 10 (254 mm)

**Clearance - Transmission:** 6 in. (152.4 mm)

**Wheel Base:** 48 in. (1219 mm)

**Turning Radius:** 25 in. (635 mm) to inside of rear wheel

**Front Tires:** 15 x 6.00 x 6 Pneumatic

**Rear Tires:** 20 x 10 x 10 Pneumatic

**Tire Pressure:**

**Front:** 12 - 15 psi (82 - 103 kPa)

**Rear:** 6 - 8 psi (41 - 55 kPa)

**Tractor Weight:** 421 lbs. (190 Kg)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

**DIMENSIONS & WEIGHT (Mfg. No. 1690853,  
1691032, 1690919 & 1691234)**

**Height (at steering wheel):** 41 in. (1040 mm)  
**Width:** 33.625 (854 mm)  
**Length:** 66.25 (1682 mm)  
**Clearance - Front Axle:** 10 in. (254 mm)  
**Clearance - Transmission:** 6 in. (152.4 mm)  
**Wheel Base:** 48 in. (1219 mm)  
**Turning Radius:** 25 in. (635 mm) to inside rear wheel  
**Front Tires:** 15 x 6.00 x 6 Pneumatic  
**Rear Tires:** 20 x 8.00 x 10 Pneumatic  
**Tractor Weight:** 416 lbs. (185 Kg)

**DIMENSIONS & WEIGHT (Mfg. No. 1690810)**

**Height (at steering wheel):** 41 in. (1040 mm)  
**Width:** 34.80 in. (880 mm)  
**Length:** 66.25 in. (1680 mm)  
**Clearance - Front Axle:** 10.2 in. (260 mm)  
**Clearance - Transmission:** 6.25 (410 mm)  
**Wheel Base:** 48.1 in. (1220 mm)  
**Turning Radius:** 24 in. (610 mm) to inside of rear wheel  
**Front tires:** 13 x 6.50 x 6 Pneumatic  
**Rear Tires:** 20 x 10 x 10 Pneumatic  
**Tractor Weight:** 420 lbs. (190 Kg)

## Common Replacement Parts

Listed below are products required in normal care of the tractor and mower. Also listed are parts that are commonly replaced. Only genuine Simplicity replacement parts will assure optimum performance. To order a complete, illustrated parts manual, use the order form at the back of the manual. Do not attempt repairs or maintenance unless proper procedures and safety precautions are followed. For assistance in any area, see your dealer.

<u>QTY.</u> <u>PER</u> <u>UNIT</u>	<u>DESCRIPTION</u>	<u>PART</u> <u>NUMBER</u>
1	Drive Belt - engine to transmission	1672135
1	Drive Belt - mower, 42"	1668066
1	Drive Belt - mower, 48"	1665638
1	Keys - ignition (2 keys with ring)	122203
2	Headlight Lamp	1665853
3	Blade - mower, 42"	1656147
3	Blade - mower, 48"	1656146
3	Cotter Pin - levelling clevises & rod	1918447
1	Spring Clip - Mower PTO Rod	1918196
2	Hitch Pin - Mower	156306
2	Safety Clips - for Hitch Pins	176012
1	39 amp. hr. Battery	1685215
1	Fuel Filter	173206
	Simplicity SAE 5W-30 Cold	*1685576
	Weather Engine Oil (case of 12 qts.)	
	Simplicity SAE 15W-40 SS/CD	*1685554
	Engine Oil (case of 12 qts.)	
2	Interlock Switch - PTO & Trans.	1701580
1	Interlock Switch - Seat	1700636

<u>QTY.</u> <u>PER</u> <u>UNIT</u>	<u>DESCRIPTION</u>	<u>PART</u> <u>NUMBER</u>
	Grease Gun Kit (incl. tube grease)	1685510
	8 Oz. Tube - for above	103077
	<b>Touch-Up Paint</b>	
	Orange Spray Paint, 13 Oz. Can	1685558
	Powder Orange Spray Paint, 13 Oz. Can	1685589
	White Spray Paint, 13 Oz. Can	103049
	<b>Touch-Up Daubers</b>	
	Regular Orange	1685562
	Powder Orange	1685593
	<i>(6 orange &amp; 6 white - see your dealer for individual daubers.)</i>	

### Transmission Fluid:

For the hydrostatic transmission fluid in the tractor use Simplicity Multi-Purpose Hydraulic/Transmission Oil, available at your dealer (see page 13 to check/add oil) ..... \*\* 1685516  
(case of 12 qts.)

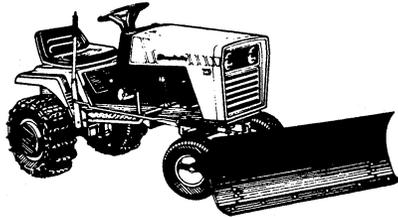
### Pneumatic Tire Seal - Stops leaks & prevents flats. Available in following amounts:

11 Oz. Tube	1685523
Case of 24 - 11 Oz. Tubes	1685525

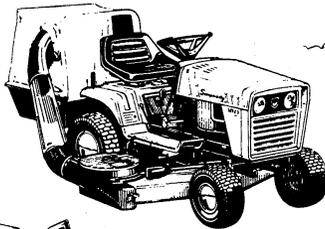
\*See your dealer to buy individual quarts.

To order parts manual see page 35.

## Optional Attachments & Accessories



**42" DOZER BLADE** - For snow removal and light dozing of dirt, gravel, etc.

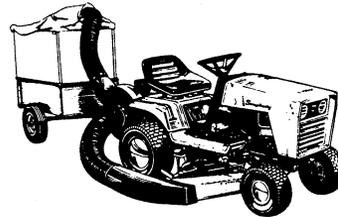


**TURBO COLLECTION SYSTEMS** - Can be used with either 6.5 bushel grass catcher, 11 bushel cart collector or QuadBagger™.



**36" & 42" SNOWTHROWER** - Efficient single stage operation to handle the heaviest snows.

**SNOW CAB** - Shields operator from blowing snow and wind.



**TIRE CHAINS** for traction.

**FRONT WEIGHT** to improve steering and stability with rear mounted attachment.

**REAR WHEEL WEIGHTS** to improve traction and stability.

**DUMP CART** for vacuum collector and hauling chores.

**ROVING NOZZLE** used with vacuum collector to collect leaves in hard-to-reach places.

**DETHATCHER** can be used with other attachments to dethatch, mow and catch in one operation.

**NOTE:** Some attachments require accessories. See your dealer or the attachment operator's manual.

---

**ENGINE DRIVEN VACUUM COLLECTOR** - For big-job grass and leaf collection.



## PARTS MANUAL AVAILABLE FOR 5200H SERIES

Simplicity Parts Manuals are fully illustrated. All of the assemblies are shown in exploded views which show the relationship of the parts and how they go together. Important assembly notes and special torque values are included in the illustrations. For standard hardware, a torque specifications chart is supplied.

To order, enclose the form with a check or money order made out to SIMPLICITY. Address the envelope to:

Simplicity Manufacturing, Inc.  
Attn: Cashier  
500 N. Spring Street  
P.O. Box 997  
Port Washington, WI 53074-0997

Parts Manuals TP-838-05 and TP-1120 contain major attachments and service accessories for 5200H Series tractors.

**Extend Equipment Life - Use Only Genuine  
Simplicity Repair Parts.**

- I would like parts manual (TP-1093) for my 5212.5H/5216H lawn tractor (Mfg. No. 1691473, 1691362). Enclosed is a check or money order for \$5.50.
- I would like parts manual (TP-838-05 or TP-1120) for 5200 Series Attachments. I have specified the Mfg. No(s.) for my attachment(s). Enclosed is a check or money order for \$5.50.
- Add \$1.50 postage and handling.

Attachment

Mfg. No.

1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

Tractor Mfg. No. \_\_\_\_\_

Name \_\_\_\_\_

Street or RFD \_\_\_\_\_

City, State, Zip \_\_\_\_\_





**SIMPLICITY MANUFACTURING, INC.**  
500 N. Spring St., P.O. Box 997  
Port Washington, WI USA 53074-0997

FORM-1701667-02  
PRINTED IN U.S.A  
3/89