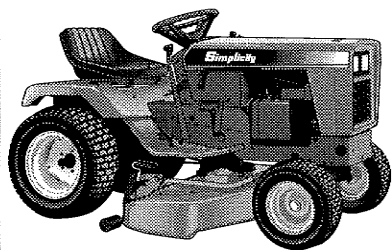


SOVEREIGN SERIES

18 Hydro



OPERATOR'S MANUAL

This manual covers the following Manufacturer's Numbers:

18 HP Tractor: Mfg. No. 1692143

42" Mower: Mfg. No. 1691218

48" Mower: Mfg. No. 1691219

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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 or death to you, yourself or bystanders, or damage to property or equipment. This cutting machine is capable of amputating hands and feet and throwing objects. The triangle  in text signifies important cautions or warnings which must be followed.

IMPORTANT - Safe operation practices for riding mowers.

I. General operation

1. Read, understand, and follow all instructions in the manual and on the machine before starting.
2. Only allow responsible adults, who are familiar with the instructions, to operate the machine.
3. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade.
4. Be sure the area is clear of other people before mowing. Stop tractor if anyone enters the area.
5. Never carry passengers.
6. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
7. 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 guard in place.
8. Slow down before turning.
9. Never leave a running tractor unattended. Always turn off blades, set parking brake, stop engine, and remove keys before dismounting.
10. Turn off blades when not mowing.
11. Stop engine before removing grass catcher or unclogging chute.
12. Mow only in daylight or good artificial light.
13. Do not operate the tractor while under the influence of alcohol or drugs.

14. Watch for traffic when operating near or crossing roadways.

15. Use extra care when loading or unloading the tractor into a trailer or truck.

II. 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.

DO

- Refer to page 9 for recommendations for 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 machine. *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 machine.
- Keep all movement on the slopes *slow* and *gradual*. Do not make sudden changes in speed or direction.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly *straight* down the slope.

DO NOT

- *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 machine by putting your foot on the ground.
- *Do not* use grass catcher on steep slopes.

III. Children

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

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

IV. Service

1. 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 machine indoors.
- d) Never store the machine or fuel container inside where there is an open flame, such as in a water heater.
2. Never run a machine inside a closed area.
3. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
4. Never tamper with safety devices. Check their proper operation regularly.
5. Keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool before storing.
6. Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
7. Never make adjustments or repairs with the engine running.
8. 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.
9. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
10. Check brake operation frequently. Adjust and service as required.



WARNING

Never operate on slopes greater than 30 percent (16.7) which is a rise of three feet in a travel distance of ten feet. When operating on slopes that are greater than 15 percent (8.5) but less than 30 percent, use front counterweights and rear wheel weights. In addition to front and rear weights, use extra caution when operating on slopes with rear-mounted grass catcher.

CHOKE



LIGHTS



IGNITION SWITCH

OFF



ON

START



WARNING

AVOID SERIOUS INJURY OR DEATH

- READ OPERATOR'S MANUAL(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.

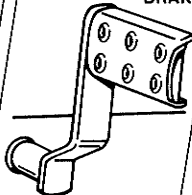
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- AVOID SUDDEN TURNS.
- IF YOU CANNOT BACK UP A HILL, DO NOT OPERATE ON IT.
- GO UP AND DOWN SLOPES, NOT ACROSS.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK DOWN SLOWLY.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND SET PARKING BRAKE.

CENTER PTO
↑ ENGAGE
↓ DISENGAGE

BRAKE-CLUTCH PEDAL

ENGAGE CLUTCH

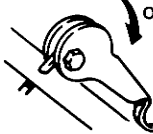
APPLY BRAKE



PARKING BRAKE LEVER

ON

OFF



CAUTION: DO NOT TOW TRACTOR. DAMAGE WILL RESULT TO HYDROSTATIC TRANSMISSION.



WARNING

DISCONNECT GROUND (-) TERMINAL WHEN WORKING ON ELECTRICAL SYSTEM TO PREVENT SHORT CIRCUIT



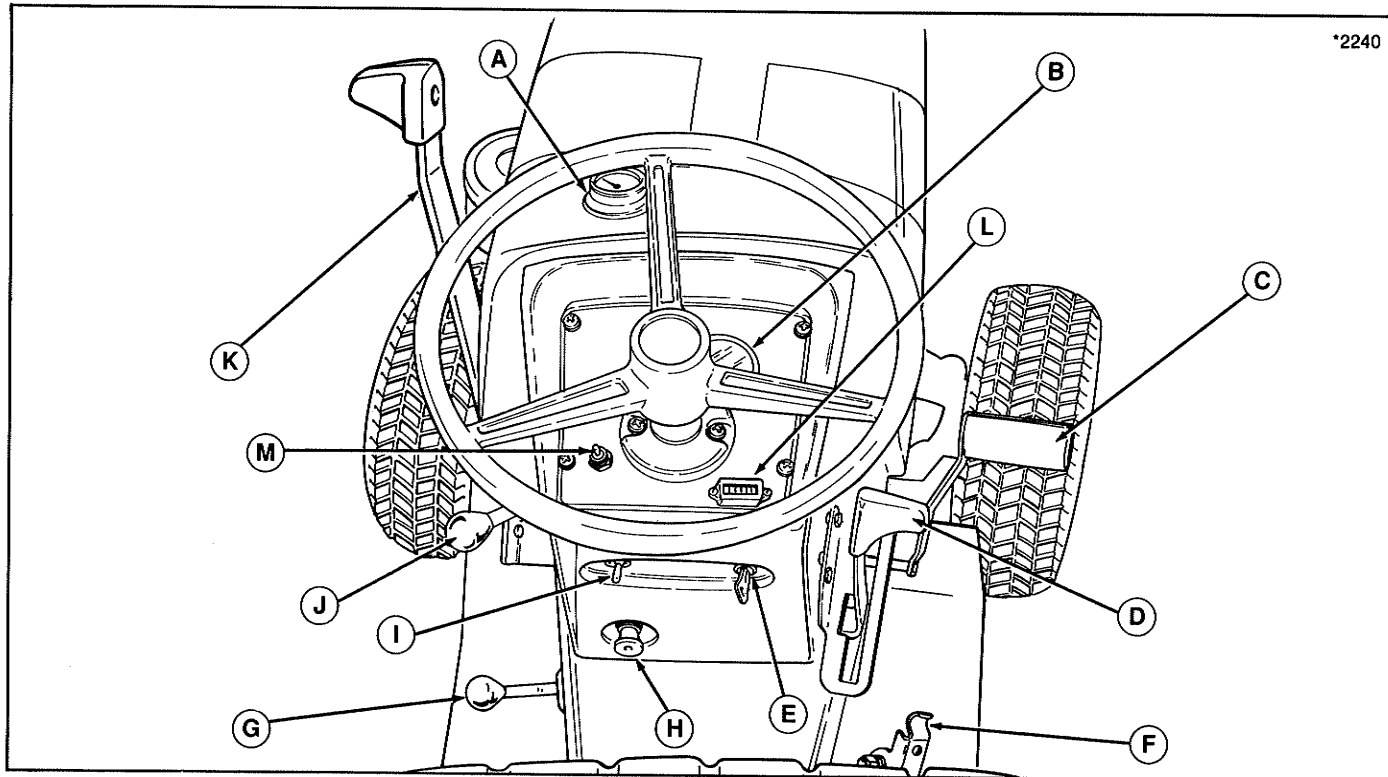


Figure 1. Controls

| ITEM | NAME | FUNCTION |
|------|----------------------------|----------------------------------------------------------------------------------------|
| A | Gasoline Gauge | Shows gasoline level and serves as tank cap. |
| B | Ammeter | Shows when battery is being charged or discharged. |
| C | Clutch/Brake Pedal | Disengages clutch when depressed at least halfway. Applies brake when depressed fully. |
| D | Transmission Control Lever | Control tractor speed and direction of travel (forward or reverse). |
| E | Ignition Switch | Operates with key to start, run or stop engine. |
| F | Parking Brake Lever | Locks brakes to hold tractor in parked position. |
| G | PTO Lever | Engages and disengages power to attachments. |
| H | Choke Knob | When pulled out, closes engine choke for cold weather starting. |
| I | Light Switch | Switches headlights on or off. |
| J | Engine Speed Control | Controls engine speed. |
| K | Hydraulic Lift | Lifts attachments to transport position. |
| L | Hourmeter | Optional accessory to record number of hours engine has run. |
| M | Spout Rotator | Optional accessory used to rotate spout on 36" and 42" snowthrowers. |

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 the transmission lever in gear or PTO engaged. The tractor engine will continue to run when the operator leaves the seat if the transmission is in neutral and the PTO lever is disengaged.

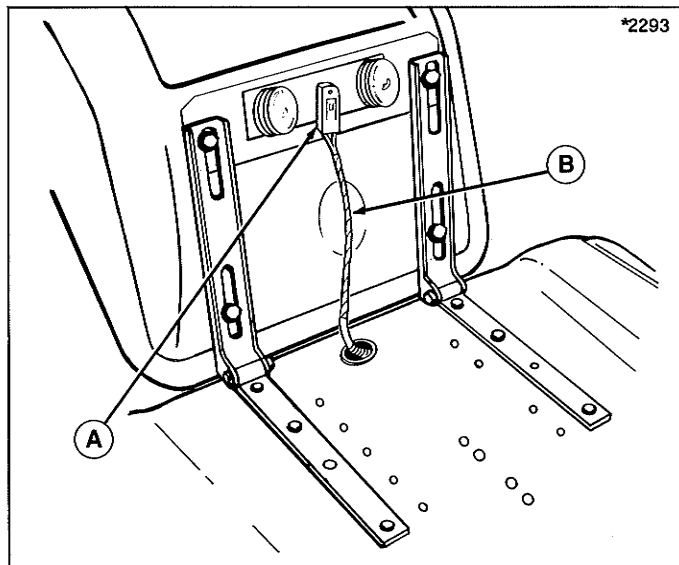


Figure 2. Seat Switch

A. Seat Switch

B. Wiring Harness

Seat Switch Tests

Check the seat switch (A, figure 2) every fall and spring with the following three tests.



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.

Test 1 — Engine should NOT crank if:

- A. Transmission lever out of neutral, or;
- B. PTO engaged.

Test 2 — Engine should crank if:

- A. Transmission lever in neutral, and;
- B. PTO disengaged.

Test 3 — Engine should shut off if:

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

OPERATION ON SLOPES

Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet in a travel distance of ten feet. When operating on slopes that are greater than 15 percent (8.5°) but less than 30 percent, use front and rear wheel weights. In addition to front and rear weights, use extra caution when operating on slopes with grass collection system.

To safely mow on slopes, perform the following common-sense test to determine if slope is too steep for tractor use:

1. Try to back directly up the slope. If tractor easily climbs slope in reverse, tractor can safely be used to mow slope by going directly up and down the face of the slope. **DO NOT MOW ACROSS THE FACE OF SLOPES OVER 15%, ONLY MOW UP AND DOWN.**
2. If tractor fails to climb slope in reverse, do not use tractor to mow slope. Use push mower and follow safety guidelines in Operator's Manual for push mower.
3. Do not start or stop on slopes when mowing up and down the face of slopes.

CHECKS BEFORE STARTING

Never add gasoline when engine is running.

1. Check that gas tank is at least 3/4 full to avoid refueling.
2. Check engine oil level and add if necessary. Refer to engine Owner's Manual for recommendations.
3. Make sure either mower deflector or grass collection system is in place.
4. Check for loose nuts, screws, bolts, oil leaks, gasoline leaks, etc.
5. Make sure the mower is in desired cutting height.
6. Check the transmission release lever is in the disengaged position. See "Pushing Tractor By Hand."
7. Adjust the seat so that all controls are within reach of operator.

STARTING AND STOPPING



WARNING

Never allow passengers to ride on the unit.

1. Before using this mower for the first time, the owner should operate in an open area, without mowing, to become accustomed to the unit. The right side of the mower can be used to trim close to objects in the lawn. Read "Operation on Slopes", page 9.
2. Make sure PTO is disengaged and transmission control lever is in neutral. Set the parking brake.

NOTE

It is very important for cold weather starting that the clutch-brake pedal is depressed. This will declutch the transmission drive belt and allow the engine to turn over easier.

3. For cold starts, pull choke knob out.
4. Turn the key to start and release when engine starts. Release choke as engine warms.
5. Make sure desired direction is clear of objects, people and animals.
6. Release the parking brake.

7. Move the transmission control lever out of Neutral to travel. Push forward to go forward, or pull back to go in reverse.
8. Place engine speed control lever to full throttle, especially if mowing thick grass. Ground speed can be controlled by placement of transmission lever (D, figure 1).
9. Lower mower from transport position. Use the PTO lever to engage mower or attachment drive.
10. Select the appropriate ground speed for conditions. If the terrain is rough, hilly or sloping, drive slowly. You should also drive slowly to cut thick grass.
11. Use the transmission control lever to slow down for turns or to trim around objects, then increase speed. To stop, move the control lever into NEUTRAL position. You can also stop by depressing the the clutch/brake pedal.
12. **Before leaving operator's position**, set the parking brake and disengage the mower PTO. Set the engine speed control to SLOW and allow the engine to idle for 20 seconds. Turn the key to OFF and remove it. Wait for moving parts to stop.
13. Clean all dirt and grass from the mower and tractor. Be sure to clean the engine and transmission compartment. Allow engine to cool before touching engine parts.

CLUTCH/BRAKE PEDAL OPERATION

Refer to figure 3. Depressing pedal from position A to B disengages transmission drive belt and applies tractor brake. Parking brake lever is shown as F, figure 1.

It is easier to apply the parking brake when the clutch/brake pedal is pushed down all the way.

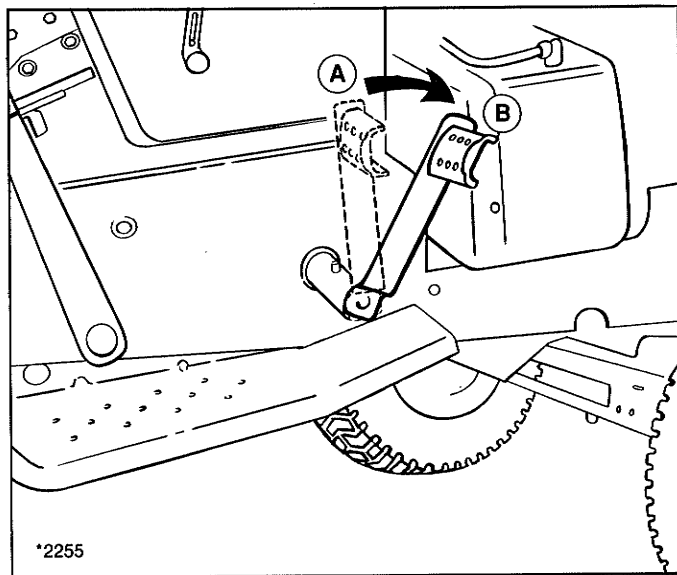


Figure 3. Clutch/Brake Pedal

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 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 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.

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 of the height of the grass, or a maximum of one inch (25 mm), in one mowing. For extremely tall grass, set the cutting height at maximum for the first pass, and then reset to the desired height and mow again.

Adjust the cutting height as necessary. For best appearance, grass should be cut in the afternoon or early evening (in daylight) when it is free of external moisture.

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

PUSHING TRACTOR BY HAND

To push the tractor by hand, the transmission release lever (A, figure 4) must be engaged (pushed all the way down).

To drive tractor, the release lever must be pulled up in the "drive" position. Refer to figure 4.

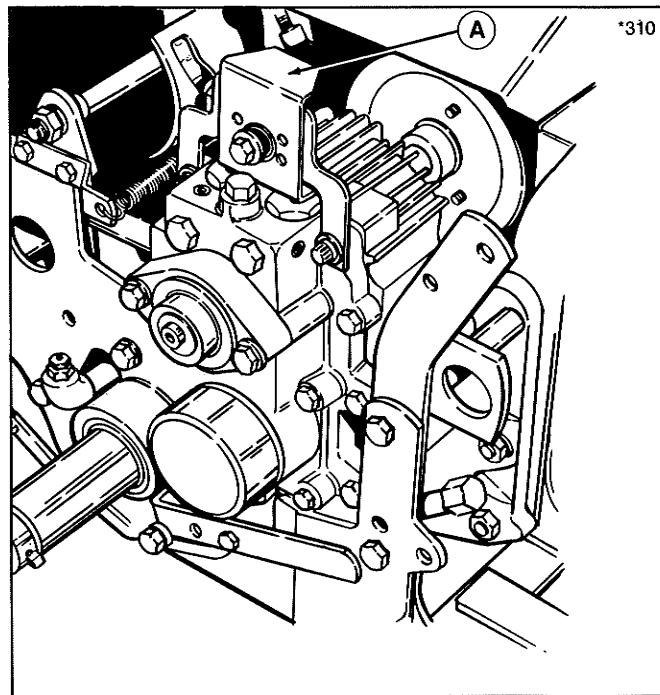


Figure 4.
A. Transmission Release Lever

Normal Care

| | See | Before First Use | Before Each Use | Every 5 Hours | Every 25 Hours | Every 100 Hours | Spring & Fall |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------|--------------------------------------------|---------------|----------------|-----------------|---------------|
| Safety Items | | | | | | | |
| Check safety interlock system. | pg. 8 | • | | | | | • |
| Check tractor brakes. | pg. 11 | • | | | | | • |
| Check mower belt stopping time. | pg. 41 | • | After adjustment or service of PTO clutch. | | | | • |
| Normal Care Items | | | | | | | |
| Check tractor & mower for loose nuts, screws, bolts, oil leaks, etc. | | • | • | • | | | |
| Check engine oil level. | Eng.Mn. | • | • | • | | | |
| Check engine & air filter. | " " | | | | **• | | |
| Change engine oil and filter.* | " " | | | | **• | | ***• |
| Lubricate tractor & mower. | pg. 18 | | | | **• | | |
| Check fluid levels & tire pressure. | pg. 22 | • | • | | **• | | |
| Check transmission fluid. | pg. 23 | • | | • | | | • |
| Change transmission fluid. | | Every 400 hrs. or for transaxle service only. | | | | | |
| Clean battery & cables. | pg. 22 | | | | | • | |
| Clean/sharpen blades. | pg. 27 | | | | | • | |
| Inspect spark plug(s). | Eng.Mn. | | | | | • | |
| <p>*Change original engine oil after first 5 hours of operation. **More often in hot (over 85° F: 30° C) weather or dusty operating conditions. ***Only if tractor is used in both summer (over 40° F: 4.5° C). Use SAE 5W-30 engine oil for cold weather operation (under 30° F).</p> | | | | | | | |

Normal Care Schedule

STORAGE (30 Days or More)

1. Run tractor engine until it stops from lack of fuel or, use a gasoline stabilizer. This additive, available from your dealer, prevents formation of gum and varnish for up to one year.



WARNING

Never store tractor where gasoline fumes may reach an open flame or sparks.

2. Change engine oil. Record the type and weight of oil put in crankcase. See the engine Owner's Manual for recommendations.
3. Remove the spark plugs. Squirt approximately one ounce (30 ml) of engine oil into engine through spark plug hole. Crank engine a few times to distribute oil and then reinstall the spark plugs.
4. Lubricate the tractor and mower.
5. Check battery fluid level. Battery life will be extended if it is removed and stored in a cold, dry place, fully charged.
6. Clean tractor thoroughly. Touch up exposed metal parts with a good quality paint (obtainable from your dealer) or a light film of grease or oil.

LUBRICATE TRACTOR

1. There are six grease fittings on the tractor. Wipe fittings clean before greasing. Use a standard grease gun with general purpose automotive grease.
 - a. One fittings in each front axle (right hand shown) (figure 5);
 - b. One fitting on clutch-brake pedal (figure 5);
 - c. One fitting on steering gear under tractor (figure 6);
 - d. Two fittings on the right hand rear axle (figure 7).
2. A few drops of engine oil should be placed on the numerous pivot points and moving parts of the tractor and mower. Keep oil off belts and pulleys to prevent belt damage. Place oil at all points where metal parts rub together, such as rods and rod guides, levers, etc.

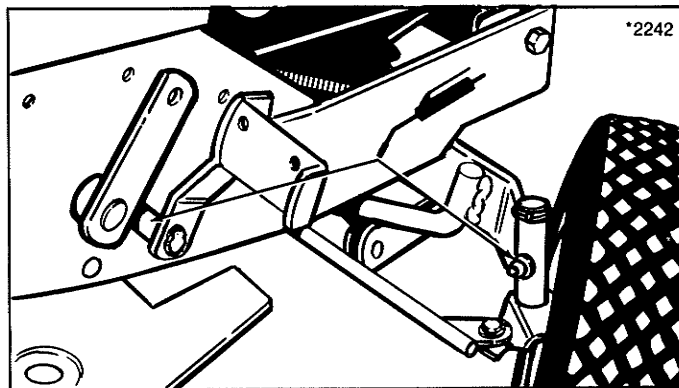


Figure 5. Grease Fittings

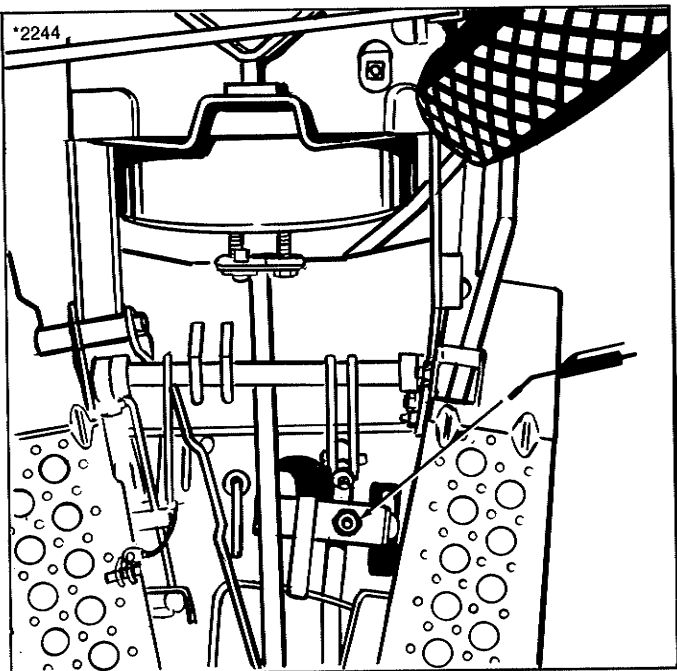


Figure 6. Grease Fitting

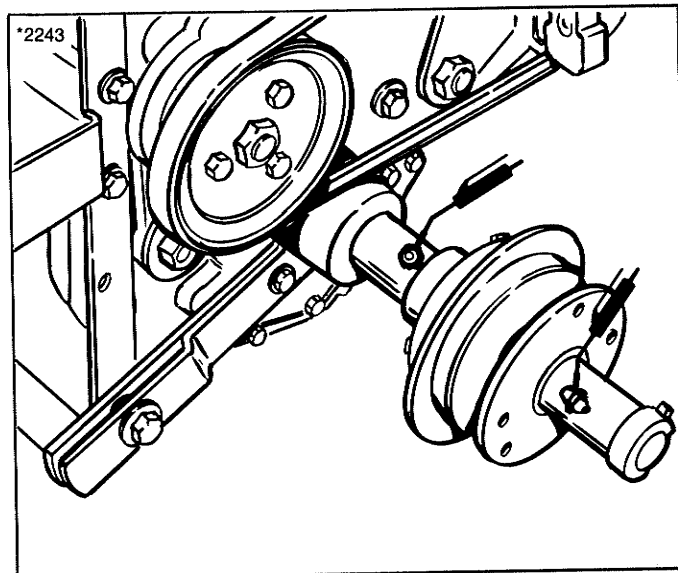


Figure 7. Grease Fittings

LUBRICATE MOWER

1. Remove mower from tractor.
2. Remove cotter pins to fold back the adjusting rods (42" mower) or lift the bail assembly (48" mower).
3. Remove the taptite screws to remove the right hand cover (both covers can be removed to check/clean inside of mower deck). See figure 8.
4. Apply a few drops of oil or one or two shots of grease (if equipped with grease fitting) to idler pulley pivot fitting and wipe off excess oil or grease. Do not get oil or grease on mower belt. Idler pulley pivot should be lubricated yearly.
5. Reinstall cover and taptite screws. Be sure the belt fits inside of the belt guide which is located on bottom of cover.
6. Reinstall adjusting rods or bail assembly and secure with cotter pins. Be sure to spread legs of cotter pins.
7. Lubricate the mower arbors as shown in figure 8A.

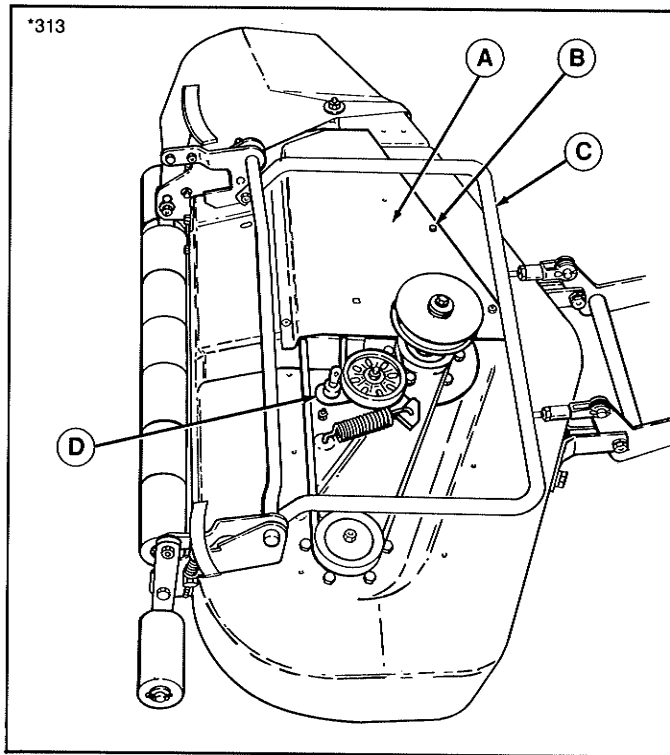


Figure 8. Idler Pulley Pivot (48" Mower Shown)

- A. Cover
- B. Taptites
- C. Bail Assembly
- D. Idler Pulley Pivot

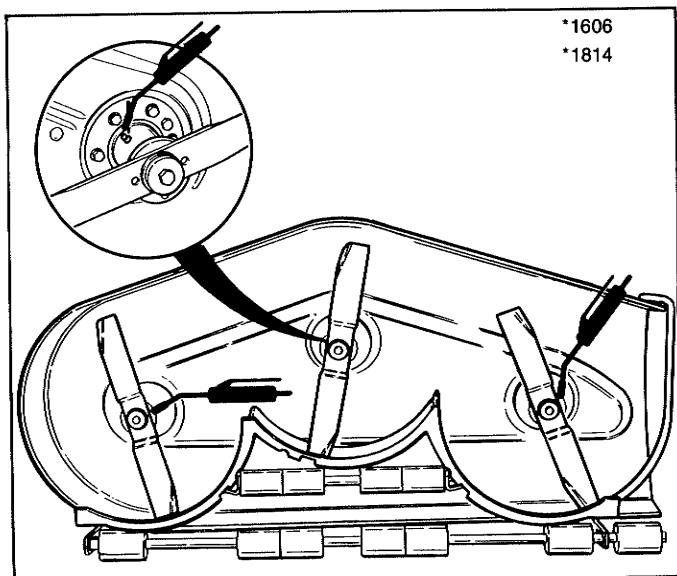


Figure 8A. Mower Arbor

CHECK BEVEL GEAR BOX FLUID

Check the bevel gear box fluid level. Remove the fill plug (A, figure 9) and wipe oil off attached pin. Insert the fill plug loosely in hole (do not screw in). In this position, the fluid should just touch the bottom of the pin. If not, add multipurpose power train oil. Do not overfill.

To drain oil, loosen the capscrews on the rear cover plate.

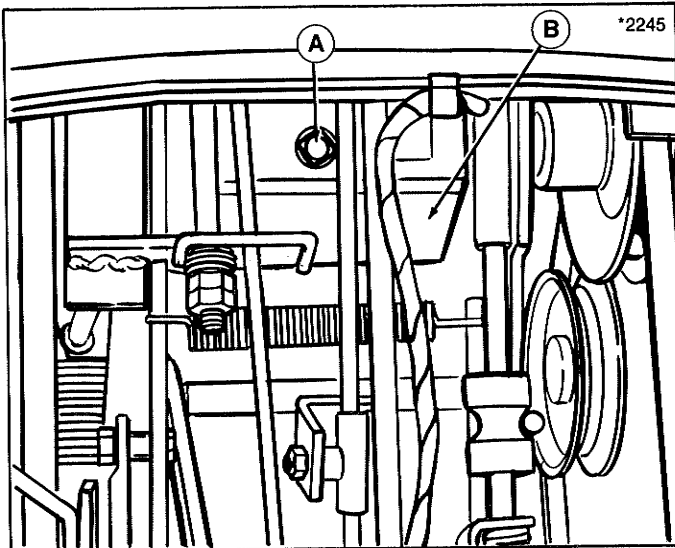


Figure 9. Bevel Gear Box

A. Oil Fill/Check Plug

B. Bevel Gear Box

CHECK TIRE PRESSURE

Make sure the air pressure in the front tires is 12 to 15 psi (82 to 100 kPa) and the air pressure in the rear tires is 6 to 8 psi (41 to 55 kPa). Use a gauge with one-pound markings.

BATTERY MAINTENANCE



WARNING

For your personal safety when removing or installing battery cables, always disconnect the negative cable **FIRST** and reconnect it **LAST**. The positive battery terminal can easily be shorted to the tractor frame by a wrench or other tool if this is not done.



WARNING

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

Check Fluid Level

Check the battery fluid level. Wipe dirt from around the cap then remove the cap. The fluid must be even with the bottom of the split ring. If not, add distilled water. Reinstall the cap. Be sure the cover is in place over positive terminal. Make sure vent tube from battery cap extends beyond battery platform.

Cleaning Battery and Cables.

1. Open engine compartment to locate battery (figure 10). Remove the protective cover from the positive terminal and disconnect the cables from the battery, negative cable first. A positive "+" sign is stamped on the battery next to the positive terminal.
2. Loosen the battery clamps (D, figure 10) by loosening both locknuts (C). Remove the battery.

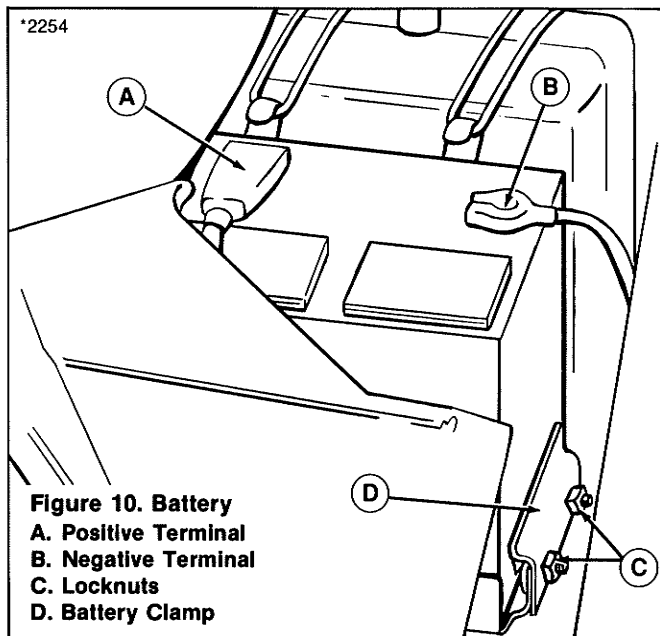


Figure 10. Battery
A. Positive Terminal
B. Negative Terminal
C. Locknuts
D. Battery Clamp

3. Clean the battery terminals and cable clamps with a wire brush.
4. Scrub the battery, cable and battery compartment with baking soda and water.
5. Reinstall battery and clamps. Reinstall vent tube to battery cap. Secure the clamps with holddown rods.
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with petroleum jelly or approved terminal spray coating. Be sure to slide cover over positive terminal.

REPACK FRONT WHEEL BEARINGS

1. Block or jack up front of tractor for wheel removal.
2. Pry off grease cup with a screwdriver or a claw hammer (figure 11).
3. Loosen collar setscrew using an Allen wrench.
4. Remove collar, washer and outer bearing.

NOTE

Keep the two bearings separated. Each should be put back in its original place.

5. Remove wheel and inner bearing.
6. Wash wheel shaft, bearings and internal part of wheel. Use a solvent and remove all old grease. Wipe dry.

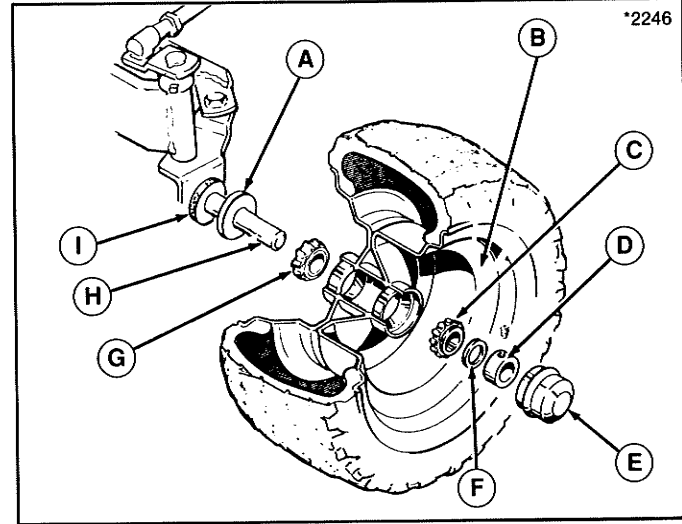


Figure 11. Repack Front Wheel Bearings

- A. Seal**
- B. Wheel**
- C. Outer Bearing**
- D. Collar & Setscrew**
- E. Grease Cup**
- F. Washer**
- G. Inner Bearing**
- H. Spindle**
- I. Spacer**

(Cont'd on next page)

7. Inspect seal. If seal is damaged, replace it.

NOTE

Use only a prime quality wheel bearing grease. Keep grease clean and free of dirt.

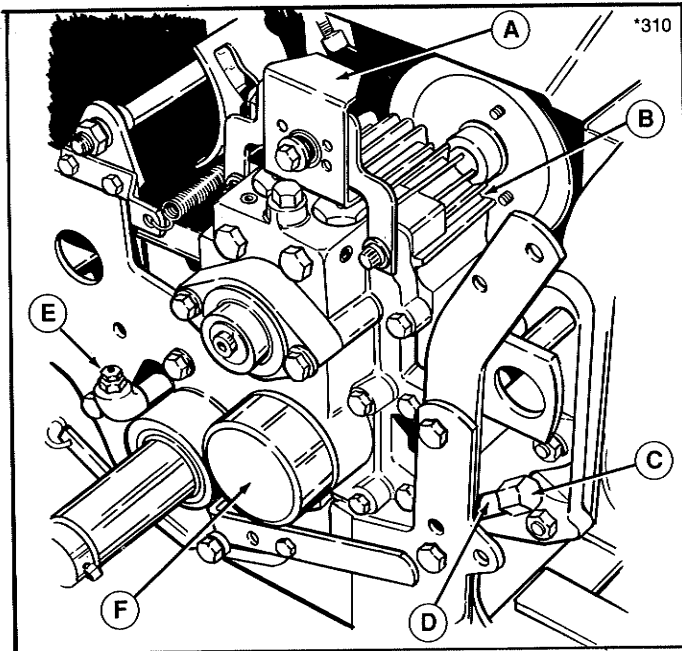
8. Coat seal and spindle with grease.
9. Lubricate bearings completely with grease. Use hand to force grease and fill spaces between bearing rollers.
10. Install inner bearing and wheel.
11. Install outer bearing, washer and collar.
12. Press collar towards tractor and spin wheel slowly to seat bearing.
13. When wheel and bearings are seated and against seal, hold collar and tighten setscrew securely.
14. Test seating by attempting to wobble wheel. If wobble is more than just evident, loosen setscrew and repeat steps 12, 13 and 14.
15. Replace grease cup and wipe up any excess grease.
16. Repeat entire procedure for other wheel.

CHECK TRANSMISSION FLUID LEVEL

1. The tractor must be on a level surface.
2. Wipe the transmission fill cap (C) and fill tube (D) clean. Remove the cap (C).
3. Lift and hold the relief valve (E) open.
4. Fluid should be at top of filler pipe. If not, add Multi-Purpose Hydraulic/Transmission oil or Type F automatic transmission fluid. Relief valve must be held fully up when adding oil.

NOTE

The filter should be replaced every 400 hours of operation. See next section.



CHANGE TRANSMISSION FLUID & FILTER

NOTE

The filter is shown in figure 12. Replace the filter every 400 hours of operation or whenever changing transmission fluid. Transmission fluid should be changed only when performing repair work on transmission or hydrostatic unit or if it becomes discolored from overheating.

1. With hydrostatic transmission fluid hot, park tractor on level ground, place hydrostatic control lever in neutral, place PTO lever in the disengaged position, engage parking brake, and stop engine. Press transmission release lever (A, figure 12) down firmly to disengage the hydrostatic pump.

(Cont'd on next page)

Figure 12. Hydrostatic Transmission

- A. Transmission Release Lever**
- B. Cooling Fins**
- C. Fill Cap**
- D. Fill Tube**
- E. Relief Valve**
- F. Filter**

2. Remove hydrostatic transmission drain plug (B, figure 13) from lower right hand side. Remove dirt from around the fill cap (C, figure 12) and loosen cap to permit air to enter transmission.
3. Clean dirt from the hydrostatic transmission filter and filter holder into which it is mounted and remove and discard filter.
4. When fluid has drained out of transmission, install new hydrostatic transmission filter in the following way:
Coat gasket with transmission fluid, screw filter on until gasket contacts base, then tighten 1/2 to 3/4 turn more. Use no tools. Turn by hand only. Install and tighten drain plug securely.
5. Remove the fill cap (C, figure 12) and clean dirt away from the relief valve (E). Using a clean funnel, add Multi-Purpose Hydraulic/Transmission oil or Type F transmission fluid into the fill tube while holding the relief valve up until fill tube will accept no more fluid. Replace the fill tube hand tight.

NOTE

Relief valve (E, figure 12) must be held fully up for the entire time that fluid is being added.

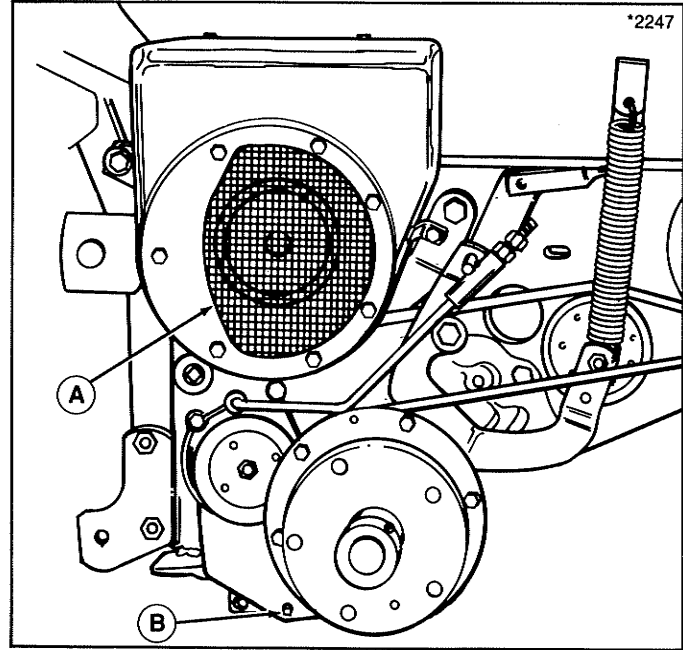


Figure 13. Hydrostatic Transmission

A. Cooling Fan Screen

B. Drain Plug

6. Start engine and set it at idle speed, or slightly above.

**CAUTION**

Make sure that transmission release lever is firmly down and that parking brake is fully engaged before starting the engine.

7. Let engine run at least five minutes, then stop engine and immediately lift relief valve and remove fill tube cap. While relief valve is up, pour more fluid into the transmission fill tube until level reaches the "run-over" point of the tube. Then install and tighten the fill tube cap. Total fluid installed should be three quarts or more. Be extremely careful to keep all dust and dirt out of transmission while changing oil and filter. Check filter and drain plug for leaks.

CHANGING ENGINE OIL

Follow the recommendations in your Kohler engine manual for oil specifications and service intervals.

The engine oil filter is located on the front left side of the engine. The oil drain valve is located on the bottom right side of the engine. To drain oil, turn the valve petcock (10mm socket) counterclockwise. After draining oil, make sure to close drain by turning petcock clockwise.

If the belt has been used before, the rear edge of the idler bracket (A, figure 15) should be in the middle of the green zone shown in figure 15. The distance between idler bracket (A) and stop (C) will be approximately 7/8 inch (22 mm).

If adjustment is required, go to step 13. If adjustment is not required, go to step 14.

13. Push the belt tensioning lever down to release belt tension. Loosen the nut that secures the rear idler pulley (D, figure 15) in the slot. To move the idler bracket (A) forward, move rear idler pulley (D) toward rear. To move the idler bracket (A) toward rear, move the idler pulley (D) forward. Tighten the nut to secure pulley. Pull the belt tensioning lever up and recheck position of idler bracket (A). Readjust if necessary.
14. Operate the tractor with mower engaged for 15 to 30 minutes with a new belt or about two minutes with a used belt. Then, disengage the PTO, stop the engine, remove the key, shift into neutral, set the parking brake. Check position of idler bracket (A, figure 15). If the rear edge of idler bracket is in middle of green zone, the belt adjustment is acceptable. If not, readjust the belt as described in step 13.
15. If a new belt or mower was installed, level the mower as described in the Adjustments section.

NOTE

Check belt adjustment periodically during mowing season. Drive belt must be readjusted when rear edge of idler bracket aligns with rear edge of green zone or goes into the red zone.

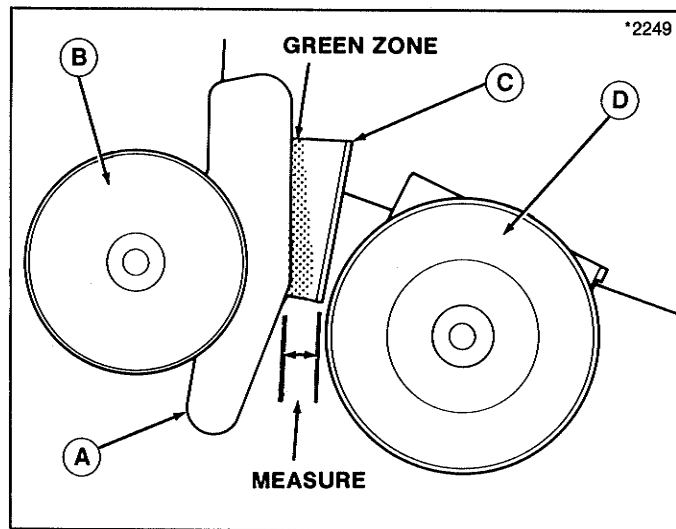


Figure 15. Belt Adjustment

- A. Idler Bracket**
- B. Front Idler Pulley**
- C. Stop**
- D. Rear Idler Pulley**

MOWER REMOVAL**WARNING**

Before leaving operator's position, lower the attachment, shut off engine and remove key, disengage power to attachments, and set parking brake.

**WARNING**

It will be necessary to start the engine to raise or lower the mower. Before starting the engine, always seat yourself in operator's position. Before leaving operator's position, shut off the engine and remove the key.

1. Park the tractor on a flat, hard surface where there is room to remove the mower at the left side of the tractor.
2. Push the belt tensioning lever (C, figure 14) fully down and forward to release mower belt tension.
3. Raise the tractor seat deck and remove the mower drive belt from the mower and tractor pulleys (see figure 14). Close the tractor seat deck.
4. Use the tractor lift lever to raise the mower halfway.
5. Remove the safety clips and pins to detach the mower hitch from the tractor hitch. Remove the right hand side pin first. Reinstall the pins and safety clips in the mower hitch for storage.
6. Lower the mower fully.
7. Remove the spring clip and pin to detach the lift cable from the mower. Reinstall the pin and spring clip in the lift cable for storage.
8. Turn tractor wheels for a sharp right hand turn, and slide the mower out the left side of the tractor.
9. Pull the belt tensioning lever fully back and up out of the way to prevent damaging it when using the tractor without the mower.

SERVICING THE MOWER BLADES



WARNING

Do not handle the blade with bare hands. Do not touch the cutting edge.

Sharpening & Balancing

1. To remove a blade, wedge a wood block between blade and housing to prevent rotation as shown in figure 16. Then, turn capscrew counterclockwise to remove.
2. Use a file to sharpen blade to a fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged it should be replaced.
3. To balance the blade, use a balancing machine or the following procedure. Drive a small nail into the side of a workbench or other vertical surface as shown in figure 17. Lubricate the nail with a drop of oil. Center the blade center hole on the nail. A balanced blade will remain level. File material off heavier end of blade until it is balanced.

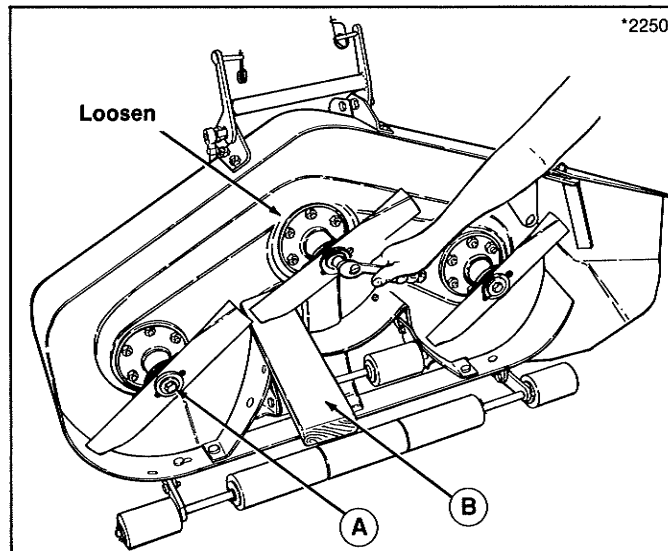


Figure 16.
A. Blade Mounting Capscrew
B. Wooden Block

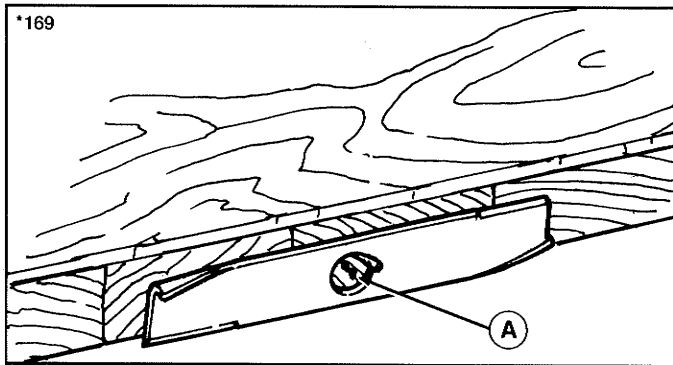


Figure 17.
A. Finishing Nail

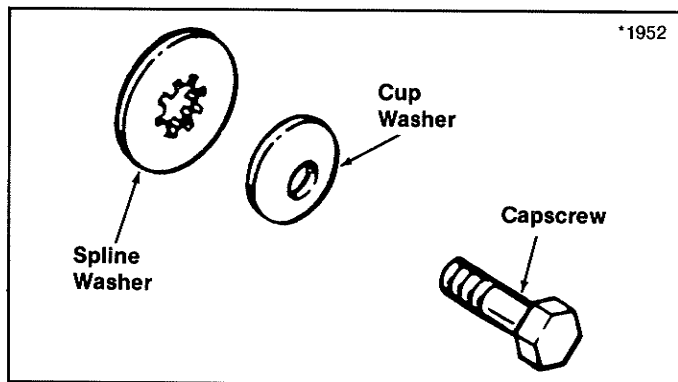


Figure 18. Blade Hardware

Blade Installation

1. Reinstall the blade(s) with the tabs pointing upward. Install the spline washer, cup washer, and capscrew (see figure 18). Be sure the splines on the spline washer are engaged with the shaft splines. Spline washer should be installed with the collar up (inside mower blade hole). Be sure cup washer is installed with the concave side up.
2. To tighten the capscrew, wedge a wood block between blade and housing to prevent blade from turning. Torque the capscrew to 60 to 70 ft. lbs. (82-95 Nm).

Troubleshooting

CONTENT OF SECTION

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



WARNING

Perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged. Always remove the ignition key before beginning the maintenance to prevent accidental starting.

Problem

Cause/Remedy

- | Problem | Cause/Remedy |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Engine will not turnover or start. | A. Transmission lever not in neutral-start position. Shift into neutral. B. PTO lever engaged. Place in disengaged position. C. Out of fuel. Allow engine to cool then refill the fuel tank. D. Engine flooded. Push choke knob in. E. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer). F. Battery terminals require cleaning. See Normal Care section. G. Battery discharged or dead. Recharge or replace. H. Wiring loose or broken. Visually check wiring & replace broken or frayed wires. Tighten loose connections. I. Solenoid or starter motor faulty. Repair or replace. J. Safety interlock switch or relay faulty. Replace if needed (see your dealer). K. Spark plugs faulty, fouled or incorrectly gapped. Clean and gap or replace. See engine manual. L. Water in fuel. Drain fuel & refill with fresh fuel. M. Old stale gas. Drain fuel & replace with fresh fuel. |

| Problem | Cause/Remedy |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. Engine starts hard or runs poorly. | <p>A. Fuel mixture too rich. Clean air filter. Check choke adjustment (engine speed control). See engine manual.</p> <p>B. Carburetor adjusted incorrectly. See engine manual.</p> <p>C. Spark plugs faulty, fouled, or incorrectly gapped. Clean and gap or replace. See engine manual.</p> |
| 3. Engine knocks. | <p>A. Low oil level. Check/add oil as required.</p> <p>B. Using wrong grade oil. See engine manual</p> |
| 4. Excessive oil consumption. | <p>A. Engine running too hot. Clean engine fins, blower screen and air cleaner.</p> <p>B. Using wrong weight oil. See engine manual.</p> <p>C. Too much oil in crankcase. Drain excessive oil.</p> <p>D. Oil Drain valve leaky. Make sure valve petcock is closed (turn clockwise).</p> |
| 5. Engine exhaust is black. | <p>A. Dirty air filter. Clean air filter. See engine manual.</p> <p>B. Check engine speed control adjustment (choke). See engine manual.</p> |
| 6. Engine runs, but tractor will not drive. | <p>A. Transmission control lever in neutral. Shift in forward or reverse.</p> <p>B. Transmission release lever in "push" position. Move into drive position.</p> <p>C. Belt is broken. See "Drive Belt Replacement". (See Adjustments section.)</p> <p>D. Drive belt slips. (See problem and cause below.)</p> |
| 7. Tractor drive belt slips. | <p>A. Clutch is out of adjustment. See your dealer.</p> <p>B. Pulleys or belt greasy or oily. Clean as required.</p> <p>C. Belt stretched or worn. Replace with correct belt.</p> |

| Problem | Cause/Remedy |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8. Brake will not hold. | A. Brake is incorrectly adjusted. See Brake Adjustment or Brake Pedal Adjustment. |
| 9. Tractor steers hard. | A. Steering linkage is loose. Check and tighten any loose connections. B. Improper tire inflation. Check and correct. C. Spindle bearings dry. Grease spindles. See Normal Care - Lubrication section. |

TROUBLESHOOTING (MOWER)

| | |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Mower will not raise. | A. Lift arms or lift link not properly attached or damaged. Attach or repair. |
| 2. Mower cut is uneven. | A. Mower not leveled properly. See Mower Leveling. B. Tractor tires not inflated equally or properly. See Normal Care section. |
| 3. Mower cut is rough looking. | A. Engine speed too slow. Set for three-fourths to full speed. B. Ground speed too fast. Use transmission lever to control ground speed. C. Blades dull and require sharpening. See Normal Care section. D. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary. E. Blades not properly fastened to arbors. See Normal Care section. |

| Problem | Cause/Remedy |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Engine stalls easily with mower engaged. | <p>A. Engine speed too slow. Set for 3/4 to full throttle.</p> <p>B. Ground speed too fast. Use slower ground speed.</p> <p>C. Carburetor not adjusted properly.</p> <p>D. Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.</p> <p>E. Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.</p> |
| 5. Excessive mower vibration. | <p>A. Mower blades, arbors, or pulleys are bent. Check and replace as necessary.</p> <p>B. Mower blades are out of balance. Remove, sharpen and balance blades (see Normal Care section).</p> <p>C. Belt installed incorrectly. See "Mower Belt Replacement".</p> |
| 6. Excessive belt breakage. | <p>A. Bent or rough pulleys. Repair or replace.</p> <p>B. Using incorrect belt. See your dealer.</p> |
| 7. Mower drive belt slips or fails | <p>A. Idler pulley spring broken or not properly attached. See "Mower Belt Replacement."</p> <p>B. Mower drive belt broken. Replace. See "Mower Belt Replacement".</p> |

BATTERY REPLACEMENT

A battery too weak to start the engine may not need 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 check the fluid level and clean the battery. Have the battery recharged if necessary. To ensure full charging, make sure tractor is operated at full throttle. 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 and Cables."

JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

Jump starting is not recommended. First check the battery in "Battery Replacement" above. If jump starting must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cable. Follow exactly the procedure outlined below, being careful not to cause sparks. Refer to figure 19.



WARNING

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.



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 the battery explosion, (3) damage to the charging system of the booster vehicle or the other 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, do not attempt to start with jumper cables.

NOTE

The positive terminal has a cover. Slide cover away to perform this procedure. Slide cover back over positive terminal for normal operation.

1. Set parking brake and place transmission in "NEUTRAL".
2. Remove vent cap from both the booster and the discharged batteries. Lay a cloth over the open 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 on 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 same cable to positive terminal of discharged battery.
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the discharged 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 booster 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 the connection.

5. The tractor with 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.

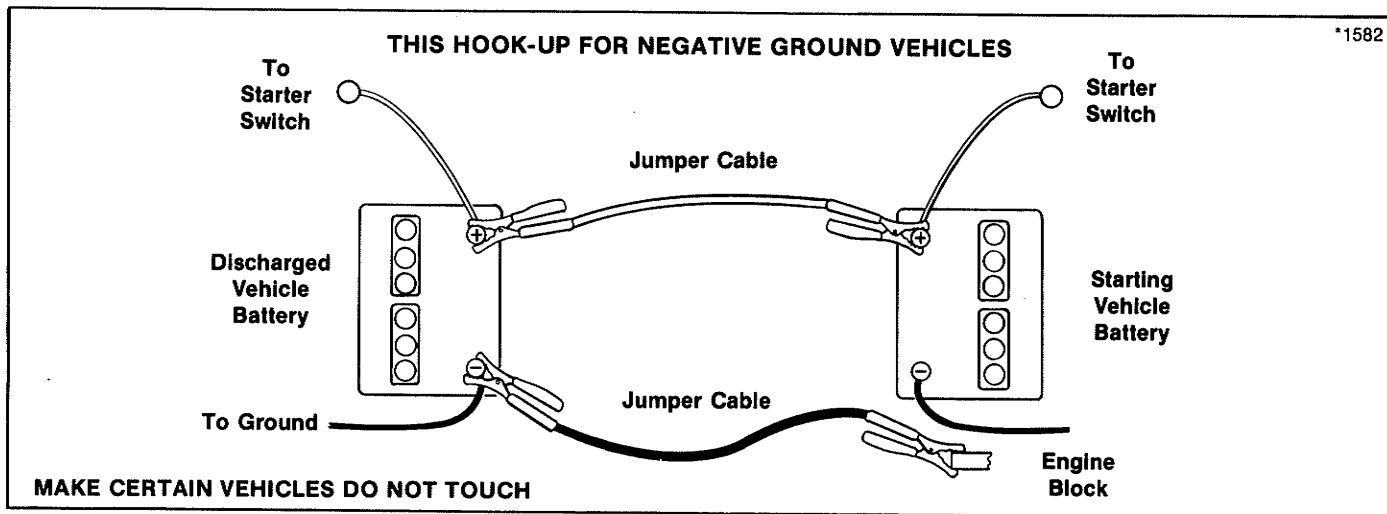


Figure 19. Jump Starting

DRIVE BELT REPLACEMENT

1. Tie the clutch-brake pedal down in the disengaged position.
2. Raise the tractor seat deck.
3. Remove the capscrew (C, figure 20) and remove the belt guard assembly (B).
4. Remove the two capscrews (D) and the taptite screw (E) to remove the fan guard assembly.
5. Remove the old belt and install the new one. Make sure the belt is in all pulley grooves and is not twisted.
6. Reinstall the fan guard with the capscrews (D) and the taptite screw (E).
7. Release the clutch-brake pedal and check to be sure belt is still seated in all pulleys.
8. Reinstall the belt guard (B) so the bracket on the back side almost touches the pulley hub. Hold the guard in place and tighten the capscrew (B).
9. Check and adjust the tractor clutch according to the instructions in the Adjustment section.
10. Lower and latch the seat deck when finished.

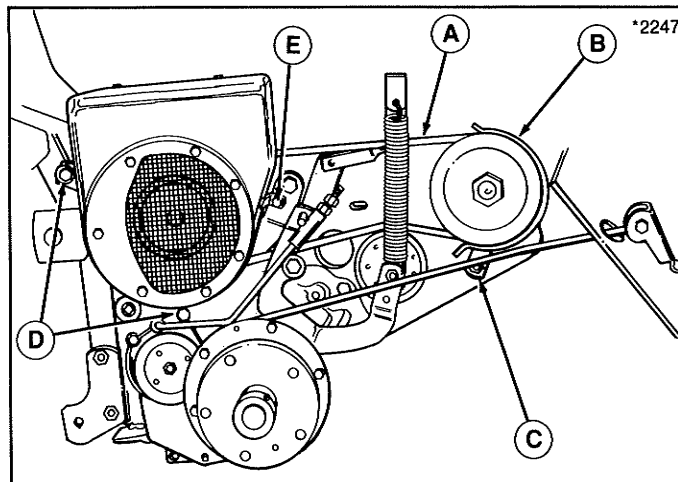
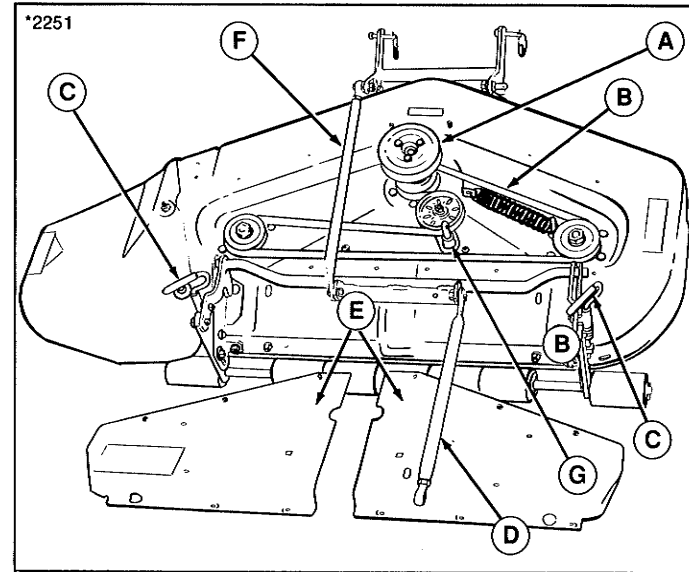


Figure 20. Drive Belt Replacement

- A. Belt**
- B. Belt Guard**
- C. Capscrew**
- D. Fan Guard Capscrews**
- E. Taptite Screw**

MOWER BELT REPLACEMENT

1. Remove mower from tractor as instructed in "Mower Removal."
2. Remove the self-tapping screws from the covers. The 42 inch mower has 10 screws. The 48 inch mower has 14 screws.
3. **For the 42 inch mower**, remove the cotter pin and pull back the right-hand levelling bar (D). Lift the right-hand belt cover over the lift anchor. Remove the left-hand cover.
4. **For the 48 inch mower**, lift the bail assembly slightly to provide access for cover removal. Remove the left-hand belt cover first. Then spring the inner edge of the right-hand belt cover up over the lift anchor (G) and slide it out from under the levelling rod.
5. Clean the interior of the mower belt housing.
6. The idler pulley arm pivots at the lift anchor. Make sure the arm pivots freely. Lubricate the idler pivot fitting as necessary with a drop of oil or a shot of grease (if equipped with grease fitting). Do not get oil or grease on the mower belt.
7. Unhook the idler spring (B) from the idler (A). Remove the old belt from the pulleys. Install the new belt and reattach idler spring (B).
8. Reinstall the belt covers and connect the levelling bars. Be sure to spread cotter pin legs fully. When installing the right-hand belt cover, be sure the belt is positioned in the belt guide which is located on bottom of belt cover.

**Figure 21. Mower Drive Belt - 42 Inch Mower Shown**

- A. Idler Pulley**
- B. Mower Belt**
- C. Height Adjusting Lever**
- D. Leveling Bar, RH**
- E. Belt Covers**
- F. Leveling Bar, LH**
- G. Lift Anchor**

Adjustments



WARNING

Before performing any maintenance or adjustment, lower the attachment, shut off engine, remove key, set parking brake and shift transmission into forward range.

MOWER LEVELING

This adjustment is normally required only when installing the mower for the first time or when reinstalling the mower after repairs were made to the tractor or mower hitches which might have affected the level. To level the mower, place tractor and mower on a level surface, set the parking brake, then proceed as follows.

1. Check tractor tire pressures. The front tires should have 12 to 15 psi and the rear tires should have 6 to 8 psi.
2. Turn both mower height adjustment handles (A, figure 22) fully clockwise to the highest cutting height position.



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.

3. Rotate the mower blades so the tips point straight forward and backward as shown in figure 22.

4. Measure and note the distance from the front tip of the center blade to the ground.
5. Measure the distances from the rear tips of the two outside blades to the ground. The outside blade measurements should be the same, and the rear measurement should be 1/8 to 1/4 inch (3 to 6 mm) less than the measurement for the center blade front tip made in step 4.
6. If the measurements taken are satisfactory, the mower is level and needs no adjustment. If the measurements are incorrect, the mower bail assembly eyebolts (42" mower) or yokes (48" mower) must be adjusted according to step 7. Both eyebolts or yokes must be adjusted to level the mower front to back. If only slight side-to-side leveling of the two side blades is required, the eyebolt or yoke of only one side can be adjusted or use the mower side adjusters to raise or lower one side.



WARNING

To avoid possible injury when performing step 7, block up the front of the mower before removing the eyebolts or yokes so the mower will not drop down.

7. Level the mower according to the following.
 - a. Loosen the jam nuts (B, figure 22).
 - b. Remove the cotter pins and then disconnect the eyebolts or yokes (C, figure 22) from the mower hitch.

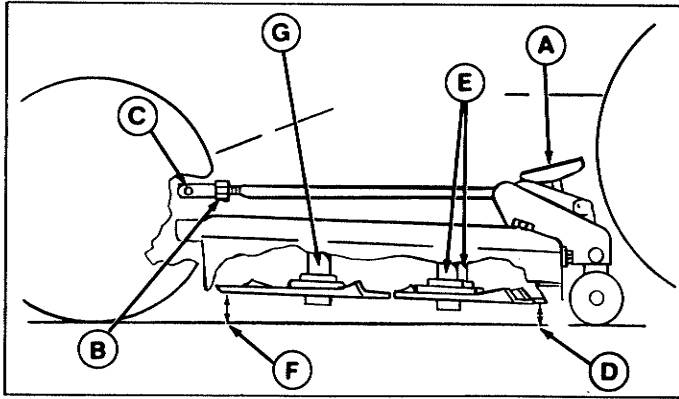


Figure 22. Level Mower

- A. Height Adjustment Handle**
- B. Jam Nut**
- C. Yoke or Eyebolt**
- D. Height of Side Blades**
- E. Side Blades**
- F. Height of Center Blade**
- G. Front Blade**

- c. Turning the eyebolts or yokes changes the length of the bail assembly arms. Shorten the bail assembly arms to decrease the front height of the mower. Lengthen the arms to increase the front height. Be sure to give both eyebolts or yokes an equal number of turns for front to back leveling.
- d. Reinstall the eyebolts or yokes on the hitch (the cotter pins need not be reinstalled yet) to check the blade tip measurements. Continue the adjustment and check until the center blade front tip is 1/8 to 1/4 inch (3 to 6 mm) higher than the side blade rear tips.
- e. Reinstall the eyebolts or yokes on the hitch and reinstall the cotter pins. Spread the cotter pins around the hitch pins. Then retighten the jam nuts (B).

SEAT ADJUSTMENT

1. Lift up the seat as shown in figure 23.
2. Loosen the four capscrews under the seat and slide the seat forward or back. Tighten the capscrews firmly.
3. The springs (B) can be moved to different holes in the deck for maximum riding comfort. A lighter person will want to move the springs more forward. To change position, lift the springs and move to desired holes.

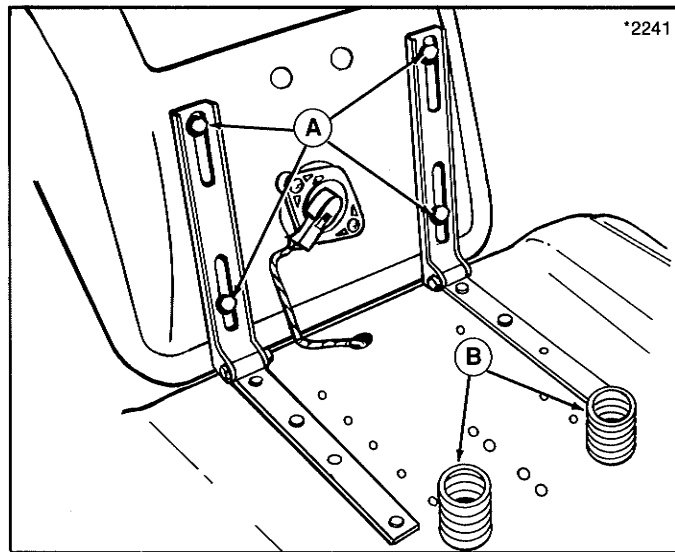


Figure 23. Seat Adjustment

A. Capscrews

B. Springs

PTO CLUTCH ADJUSTMENT

The PTO clutch is properly adjusted when the clutch pulley (C, figure 24) moves away from clutch cone (D) 1/16 inch (1.5 mm) when clutch is disengaged. To adjust, proceed as follows.

1. Loosen the rear nut (B).
2. Turn the front nut slightly clockwise to increase pulley travel or counterclockwise to decrease pulley travel.
3. Tighten the rear nut against the front nut and repeat the check.
4. Adjust locknut (E) so there is 1/8" (3 mm) between locknut (E) and pivot arm when clutch is disengaged.

MOWER BELT STOPPING TIME

Brake pads installed on the PTO clutch will stop the mower drive belt and blades within several seconds.

If the PTO clutch is serviced or adjusted, check the mower belt stopping time by observing the belt when the PTO is disengaged. If belt does not stop within five seconds, PTO clutch must be adjusted or clutch brake requires service. See "PTO Clutch Adjustment".

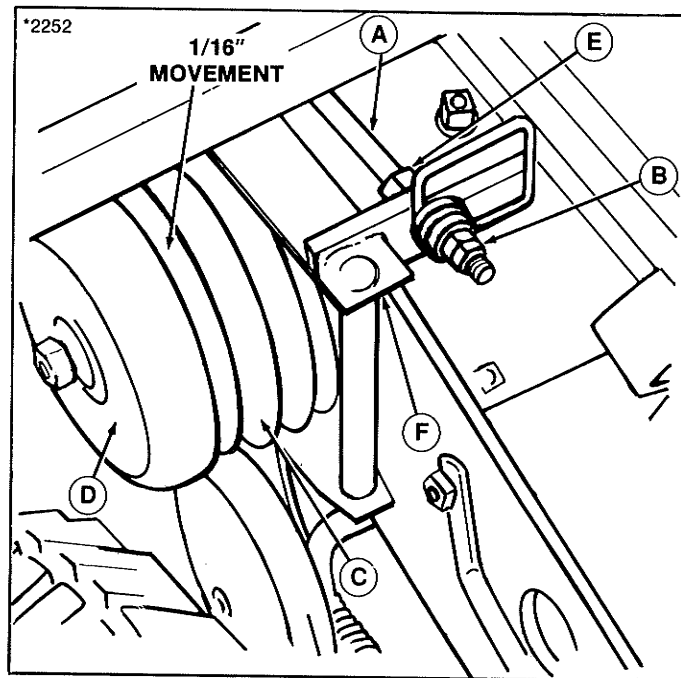


Figure 24. PTO Clutch Adjustment

- A. PTO Clutch Rod
- B. Jam Nuts
- C. Clutch Pulley
- D. Clutch Cone
- E. Locknut
- F. Pivot Arm

PARKING BRAKE ADJUSTMENT

To adjust parking brake, loosen the jam nut (E, figure 25) at parking brake rod end. Rotate the parking brake handle (B) clockwise until it is tight and pulled up against fender as shown. Operate the brake handle to see if it is too loose or too tight. It should be tight against fender when set but not too tight to operate. When proper adjustment is made, tighten the jam nut.

It will be easier to apply the parking brake when the clutch/brake pedal is pushed down all the way.

CLUTCH/BRAKE ADJUSTMENT

1. To adjust the foot brake, engage the parking brake. Adjust jam nuts (H, figure 25) on end of foot brake rod to provide 1/2 inch (12.7 mm) spring length between washers. Depress the pedal to engage the brake. The drive belt should be slack and free of idler pulley. If not, check clutch adjustment (step 2). Test operate the tractor. If brake does not stop the tractor, see your dealer.
2. To adjust tractor clutch, adjust jam nuts (J) on clutch rod so there is 1/2 inch (12.7 mm) spring length between washers with clutch-brake pedal in up position.

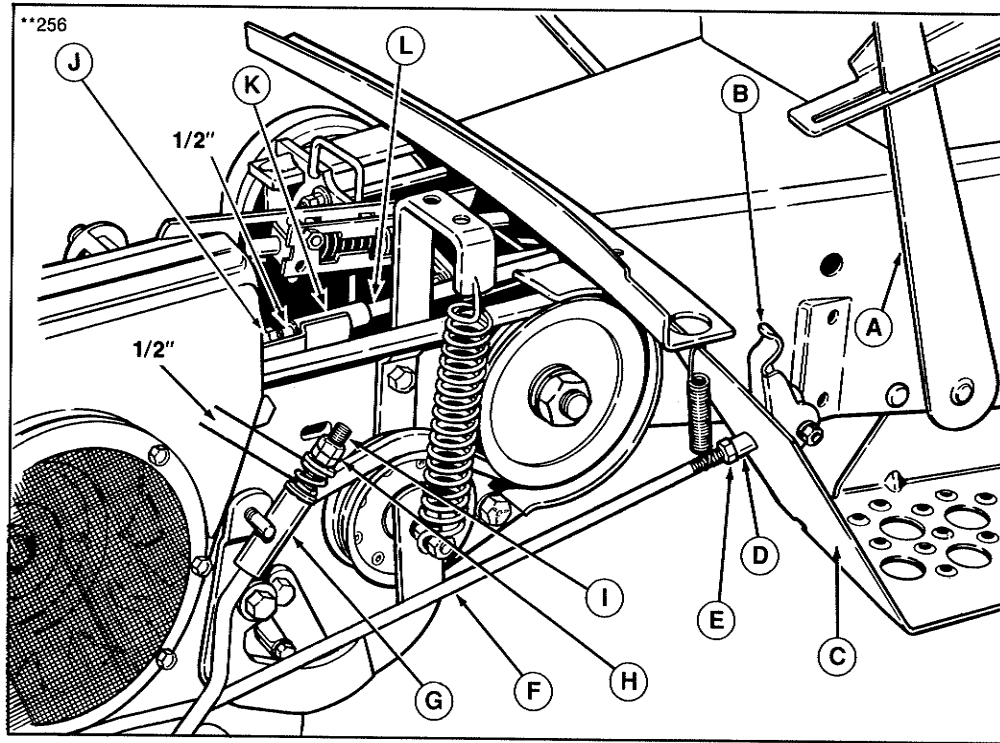


Figure 25. Brake & Clutch Adjustment

A. Hydrostatic Control Lever

B. Parking Brake Handle

C. Fender

D. Parking Brake Rod End

E. Jam Nut

F. Parking Brake Rod

G. Foot Brake Rod Guide

H. Jam Nuts

I. Foot Brake Rod

J. Jam Nuts

K. Clutch Rod Guide

L. Clutch Rod

NEUTRAL ADJUSTMENT

If the tractor creeps forward or back when the hydrostatic control lever is in neutral, adjust as follows:

**CAUTION**

**Always stop engine before leaving operator's position.
Do not perform adjustment with engine running.**

1. Park tractor on level ground, make sure hydrostatic control lever is firmly seated in the neutral notch of quadrant, stop engine and set parking brake.
2. Raise the seat deck and check if the pump control arm roller (E, figure 26) is exactly centered with the centering mark (D). If not, loosen bolt (C) and move the control cam (B) until centering mark (D) is centered on roller (E). Tighten the bolt (C).
3. Lower the seat deck, get in operator's seat, start engine and release parking brake. If tractor still creeps with hydrostatic control lever in neutral, note which direction it creeps and proceed with next steps.
4. Stop the engine, set parking brake, and raise seat deck. Loosen the jam nut (H) on end of cam pivot shaft (G). If tractor creep had been in reverse, turn adjusting nut (I) 1/8 to 1/4 turn clockwise when viewed from right side of tractor. If tractor creep had been forward, turn nut 1/8 to 1/4 turn counterclockwise. Lock jam nut, lower seat

deck, get in operator's seat, start engine, and release parking brake. If tractor still creeps, repeat step "4", turning nut (I) a little at a time until no creep occurs.

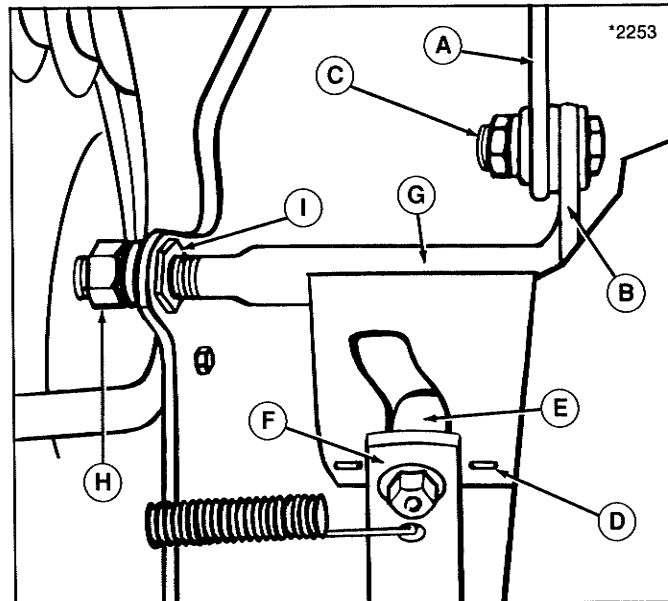


Figure 26. Hydrostatic Neutral Adjustment

- | | |
|-----------------------------------|----------------------------|
| A. Control Strap | F. Pump Control Arm |
| B. Control Cam Assy. | G. Cam Pivot Shaft |
| C. Bolt | H. Jam Nut |
| D. Centering Mark | I. Adjusting Nut |
| E. Pump Control Arm Roller | |

Common Replacement Parts

Listed below are part numbers for the more common replacement parts. Use the order form at the back of the manual to order a complete, illustrated parts manual. Only genuine replacement parts will assure optimum performance and safety. Do not attempt repairs or maintenance unless proper procedures and safety precautions are followed. For assistance in any area, see your dealer.

REPLACEMENT PARTS

| <u>QTY. PER UNIT</u> | <u>DESCRIPTION</u> | <u>PART NUMBER</u> |
|------------------------------|--------------------------------------|------------------------|
| 1 | Clevis Pin - Lift Cable | 153058 |
| 1 | Cotter Pin - Lift Cable | 1918447 |
| 1 | Spring Clip - Lift Cable | 1918196 |
| 1 | Transmission Belt | 1650502 |
| 1 | 2 Keys with Ring | 122203 |
| 2 | Headlight Bulb | 1677371 |
| 3 | Blade - 42" Mower | 1679917 |
| 3 | Blade - 48" Mower | 1679916 |
| 1 | Belt - 42" Mower, Arbor Drive | 1656960 |
| 1 | Belt - 48" Mower, Arbor Drive | 1657044 |
| 1 | Belt - 42" Mower, Mower PTO Drive | 1666801 |
| 1 | Belt - 48" Mower, Mower PTO Drive | 108508 |
| 2 | Mower Hitch Pins | 156306 |
| 2 | Clips for Mower Hitch Pins | 176012 |
| 1 | Cotter Pin for Leveling Mechanism | 1918452 |
| 2 | Pins, Leveling - 48" Mower only | 1960116 |
| 1 | Pivot Pin, Leveling - 42" Mower only | 1651516 |
| 1 | Battery | 1685058 |

| <u>DESCRIPTION</u> | <u>PART NUMBER</u> |
|-------------------------------------------------------------|------------------------|
| Simplicity Engine Oil: | |
| • SAE5W-30 Cold Weather Engine Oil | * 1685576 |
| • SAE 30W - 32° and above | * 1685659 |
| Multi-Purpose Hydraulic/ Transmission Oil | * 1685516 |
| * Case of 12 qts. See your dealer to buy Individual quarts. | |

| | |
|--------------------------------------------------------------------|---------|
| Grease Gun Kit | 1685510 |
| 8 Oz. Tube - for above | 103077 |
| Touch-Up Paint | |
| Deep Orange Spray Paint, 13 Oz. Can | 1685611 |
| Deep Orange Paint, 1 Qt. | 1685612 |
| Deep Orange, 1/2 Oz. Touch-up Dauber | 1685615 |
| Gloss Black Spray Paint, 13 Oz. Can | 1685639 |
| Gloss Black Paint, 1 Qt. | 1685641 |
| Pneumatic Tire Seal - Stops Leaks. Available in following amounts: | |
| 11 Oz. Tube | 1685523 |
| Case of 24-11 Oz. Tubes | 1685525 |
| 12 Pac - 11 Oz. Tubes | 1685537 |
| Hourmeter Kit | 1685535 |
| Designer Seat Cover | 1685541 |

Specifications

ENGINE:

| | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Make: | Kohler Command OHV |
| Model: | CH 18 S |
| Horsepower: | 18 HP @3600 RPM, Engine Manufacturer's Rating. |
| Bore: | 3.03 in. (77mm) |
| Stroke: | 2.64 in. (67mm) |
| Displacement: | 38 cu. in. (624cc) |
| Crankshaft: | Horizontal, Cast Aluminum |
| Construction: | Cast Iron Cylinder Liners Cast Aluminum Crankcase |
| Electrical System | 15 Amp Flywheel Alternator - Solid State Regulator - Rectifier, 12 Volt - 296 Cold Cranking Amps, 60 Minute Reserve Key Ignition Switch Ammeter on Instrument Panel |
| Ignition | Electronic |
| Governor | Type: Internal Fly-Weight w/External Adjustment Range: 3600 ± 75 RPM Wide Open Throttle, No Load |
| Air Cleaner | Type: Replaceable Paper w/Oiled Foam Pre-Cleaner |
| Crankcase | Breather: Ventilated through Air Cleaner Lubrication: Pressurized Spray System Oil Capacity, 2 Qts. (1.9L) |

Fuel Tank

Material: Non-Corrosive Polyethylene
Fuel Level Gauge Built Into Filler Cup
Capacity: 3 Gallons (11.4 L)

Muffler

Quiet Compact, Low Back Pressure

TRANSMISSION

Type

Hydrostatic Pump and Motor
Air Cooled by Own Fan
Variable Displacement Axial Piston
Fixed Displacement Reversible Axial Piston
Type: *Simplicity* Multipurpose Hydraulic/
Transmission Oil
Reservoir: Final Drive Gear Case, 3 Qt. (2.8 L) Cap.
Filter: Cartridge w/25 Micro Rating, Full Flow.
w/o Anti-Drain Back

Control

Spring Dampened Single Lever
Neutral Detent with Safety Start Switch
Free Wheeling Valve and Latch for Manual
Tractor Movement
Continuously Variable, Forward and Reverse,
without Clutching or Shifting

Speed Range

@ 3600 RPM

Forward: 0 - 7 MPH (0 - 11.3 km/h)
Reverse: 0 - 4 MPH (0 - 6.4 km/h)

Final Drive

Hardened Spur Gears
Rolling Contact Bearings

Differential

Planetary Spur Gear, Controlled Traction Type

CHASSIS:

Frame Channel Electrically Welded, Heavy Gauge Steel
 Power Take-Off Points: Front, Center, Rear
 Engine Mounting: Above Front Axle
 Pivot Point Location: At Front Axle

Rear Wheels Pneumatic Inflation Pressure: 6-8 psi (41-55 kPa)
 Tire Size: 23 x10.50-12 Turf Type

Front Wheels Pneumatic Inflation Pressure: 12-15 psi
 (82-103 kPa)
 Tire Size: 16 x 6.50-8

Accessibility Seat Hood Tips Forward, Seat Deck Tips Rearward
 Type: Molded Foam, High Back
 Cover: Black Vinyl
 Adjustable Spring Suspension

Turning Radius Inside Rear Tire: 32 In. (81 cm)

CONTROLS:

Steering Full Circle Steering Wheel
 System: 4.14 to 1 Ratio, Gear and Sector
 Location: Right Front

Clutch-Brake Pedal Clutch: Soft Action, V-Belt Clutch
 Brake: External Band Type
 Parking Brake Lock Standard Equipment

Location Hydraulic Lift Lever: Left Side
 Power Take-Off Clutch Lever: Left Side
 Transmission Control Lever: Right Side
 Ignition Key Switch, on dash panel
 Light Switch, on dash panel
 Throttle Lever, on dash panel
 Choke Control, on dash panel
 Ammeter, on dash panel
 Parking Brake Lock: Lower Right of Seat

DIMENSIONS:

Overall Length 70 In. (178 cm)
Overall Width 36.9 In. (94 cm)
Height To Top of Dashboard: 35.7 In (91 cm)
 To Top of Steering Wheel: 39.7 In. (101 cm)

Wheel Base Weight (approx.) 50.7 In (127 cm)
 Net: 689 lbs.
 Shipping: 808 Lbs.
 w/48" Mower 956 Lbs.

MOWER:

Effective Cutting Width 48" Mower - 48 In. (122 cm)
Overall Width With Deflector 48" Mower - 62 In. (155 cm)
Weight (approx.) 48" Mower - 135 Lbs. Net; 153 Lbs. Shipping
Variable Cutting Height 1.62" - 3.12" (4.1 - 7.9 cm)
Blade Arrangement Three Staggered Blades
Mower Drive V-Belt from Tractor PTO Pulley
Spindle Bearings Lubricated and Sealed Ball Bearings -
 Lube Fitting Provided

Optional Attachments and Accessories

See your dealer to purchase these items.

Dump Cart for vacuum collector and hauling chores.

36" & 42" Snowthrowers, single stage operation to handle heavy snow removal.

42" & 48" Mower for smooth lawn cutting.

Tire Chains for traction on slippery surfaces.

Hourmeter to record operating time.

Front and Rear Wheel Weights improve traction and stability. Required with some attachments.

Hubcaps

Turf Tires and Ag Tires

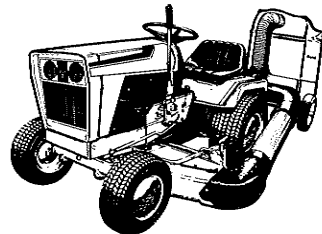
Rear Lift

Winterizing Kit protects engine for winter operation.

Power Steering Kit - hydraulic assist kit for easier steering.

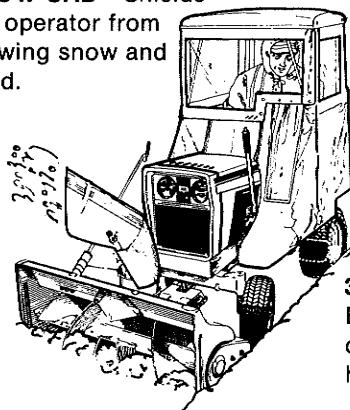


36" TILLER - Powered by tractor PTO.



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

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



36" & 42" SNOWTHROWER - Efficient single stage operation to handle the heaviest of snow.

Parts Manual Available

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 specification chart is included.

To order, enclose this 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

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

- I would like a Parts Manual (TP-1125) for my Sovereign/GTH-L Series tractor and mower. Enclosed is a check or money order for \$5.50.
- I would like a Parts Manual (TP-861) for my Sovereign/GTH-L/7100 Series Mowers, Attachments and Accessories. Enclosed is check or money order for \$5.50.
- I would like a Repair Manual (TP-937) for my Large Frame Series tractor and mower. Enclosed is a check or money order for \$8.00.
- Please include \$1.50 for shipping and handling.

Tractor Mfg. No. _____

Print clearly. This will be your mailing label.
Allow four to six weeks for delivery.

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