

Print Instructions for Print Vendors (Paper Manuals)

SETUP INSTRUCTIONS

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If you have any further questions regarding this manual, please contact Ken Cehonski in Ferris Industries Engineering Department at (315) 495-0100 ext. 249.

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Dealer Setup & Adjustment Instructions

Ferris IS4500Z Series - 28 HP Diesel - 35 HP Gas - 61" Mower Deck



This Dealer Setup Instruction covers the following products:

Model No.	Description
IS4500ZC28D61	IS4500Z w/ 28hp CAT Diesel, 61" Side Discharge Mower Deck
IS4500ZC28D61CE	IS4500Z w/ 28hp CAT Diesel, 61" Rear Discharge Mower Deck, Export
IS4500ZBL3561	IS4500Z w/ 35hp Briggs LC, 61" Side Discharge Mower Deck

ATTENTION SETUP PERSONNEL:



The safety warnings provided in this guide and in the operator's manual included with the unit contain important information that must be obeyed when assembling, setting-up, operating, servicing, transporting, or storing the unit.

These warnings are highlighted by the safety alert triangle symbol shown above, which signifies that an important safety message is being provided.

You must read, understand, and follow these warnings and instructions, and use safe shop and work practices at all times while working on or around this unit and all other outdoor power equipment.

Setup



Sections and items denoted by the **Setup** symbol provide the information necessary to fully assemble, test, and prepare the units described above for delivery to your customers.

A Quick Setup List is provided on page 2 of this booklet to help you identify and check that the items have been performed.

Adjust



Additional information concerning functional tests, general adjustment procedures, and the location of normal lubrication points are included in these instructions.

Although all required lubrication and normal adjustments on factory-assembled components are done at the factory, this additional information is provided to assist you in ensuring that each unit is delivered to the customer in proper working order.

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Setup

Quick Setup List -

Page	Setup Procedure	Steps to Perform
3	Uncrating	<input type="checkbox"/> Remove Crate & Banding. <input type="checkbox"/> Loosen Hydraulic Release Valves. <input type="checkbox"/> Release Parking Brake and Roll Tractor forward off skid. <input type="checkbox"/> Tighten Hydraulic Release Valves.
4	Battery Installation	<input type="checkbox"/> Install & Secure Battery.
4	Tractor Assembly	<input type="checkbox"/> Assemble the Motion Control Handles. <input type="checkbox"/> Assemble the Seat.
5	Check Fluid Levels	<input type="checkbox"/> Check Engine oil level. <input type="checkbox"/> Check Hydraulic Oil level. <input type="checkbox"/> Check Antifreeze Level <input type="checkbox"/> Check Hydraulic Release Valve <input type="checkbox"/> Check Tire Pressure
6	Mower Assembly	<input type="checkbox"/> Check Blade Bolt Torque. <input type="checkbox"/> Adjust Deck Lift Rod Timing. <input type="checkbox"/> Level Mower Deck. <input type="checkbox"/> Check PTO Drive Belt. <input type="checkbox"/> Check Spindle Drive Belt
11	Lubrication & Fuel Preparation	<input type="checkbox"/> Lubricate all grease & oil points. <input type="checkbox"/> Add fuel. <input type="checkbox"/> Prime the Fuel System. <input type="checkbox"/> Start the Engine.
13	SAFETY CHECKS	<input type="checkbox"/> Check for <u>LOOSE HARDWARE</u> . <input type="checkbox"/> Check all <u>OPERATOR CONTROLS</u> . <input type="checkbox"/> Perform <u>SAFETY INTERLOCK SYSTEM CHECK</u> .

Setup



Uncrating

1. Using a reciprocating utility saw or equivalent, cut crate away from bottom skid. Remove crate. Remove shrink-wrap plastic.
2. Cut all banding securing the tractor and deck to the bottom skid.



IMPORTANT NOTE

When cutting crate from bottom skid, use caution around tractor tires and mower rollers.

3. Open the hydraulic release valves. To open the release valves, turn the right-hand release valve, which is located on engine side of the right-hand pump, counter-clockwise 2 full turns **MAX**. Then turn the left-hand release valve, which is located on the outer side of the left-hand pump, counter-clockwise 2 full turns **MAX**. See Figure 1 for valve location.
4. Push down on parking brake lever (A, Figure 2) to release parking brake.
5. Be sure there are no nails or sharp objects on bottom skid to puncture the tractor's tires. Roll the tractor forward off the bottom skid.
6. After moving the tractor, re-engage the pumps (drive position) by turning the release valves clockwise and tighten to 80-120 in/lbs (9-13.5 N.m.).

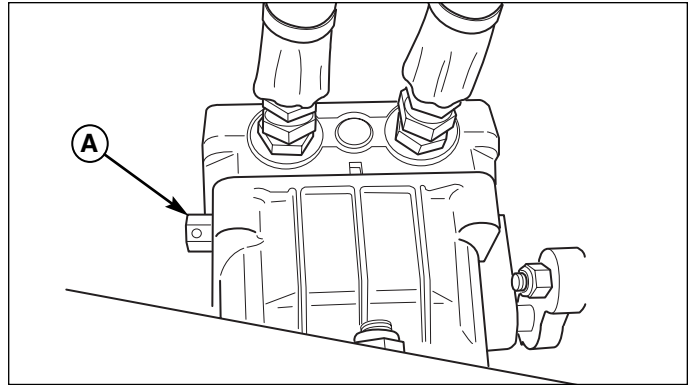


Figure 1. Hydraulic Release Valve Location

A. Hydraulic Release Valve (Right-hand side shown)

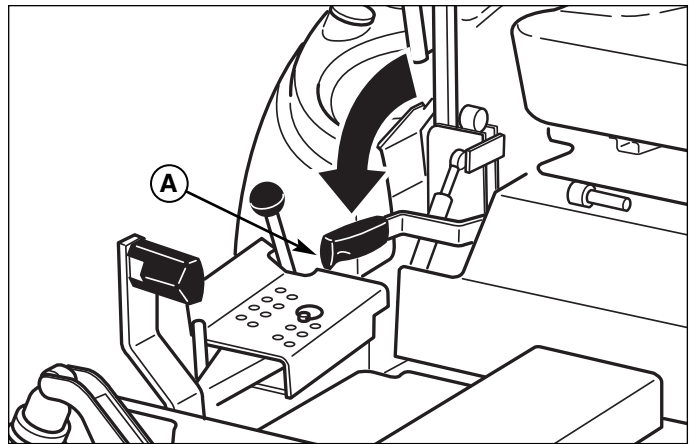


Figure 2. Disengaging the Parking Brake

(lever shown in disengaged position)

A. Parking Brake Lever

Setup



Battery Installation

! WARNING

BATTERY SAFETY RULES

- Battery acid causes severe burns. Avoid contact with skin.
- Wear eye protection while handling the battery.
- To avoid an explosion, keep flames and sparks away from battery, especially while charging.
- When installing battery cables, **CONNECT THE POSITIVE (+) CABLE FIRST** and negative (-) cable last. If not done in this order, the positive terminal can be shorted to the frame by a tool.

Install Battery

1. Raise the seat plate to expose the battery compartment.
2. Connect the red positive battery cable (B) to the positive battery post.
3. Connect the black negative battery cable (A) to the negative battery post.

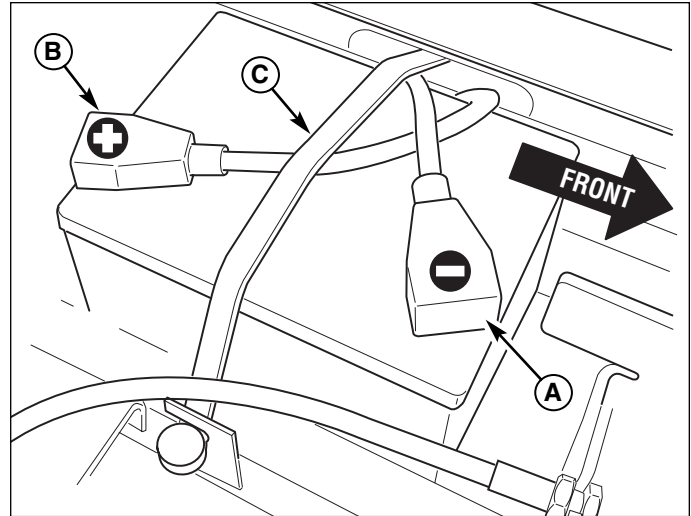


Figure 3. Battery Compartment

- A. Negative (-) Cable & Terminal
- B. Positive (+) Cable & Terminal
- C. Retainer Strap

Setup



Tractor Assembly

Motion Control Handle Assembly

1. Remove the handles and mounting hardware from the handle bar box.
2. Assemble the control handles to the square bases using the 5/16-18 x 1" bolts, lock washers and flat washers. There are two sets of holes available for the handle height. Assemble the handles in the same set of holes for both sides.

NOTE: There are a LEFT-HAND and a RIGHT-HAND control handle. When assembled to the base, the handle should tilt forward as shown in Figure 4.

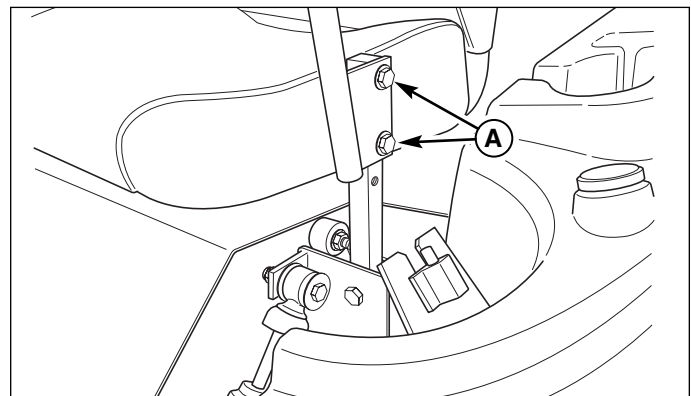


Figure 4. Control Handle Installation

(left-hand side shown)

- A. 5/16-18 x 1" Bolts, Lock Washers and Flat Washers

Seat Assembly

1. Unpack the seat.
2. Install the seat onto the seat mount plate and secure with the 5/16-18 nylon lock nuts.



Check Fluid Levels

Check Engine Oil

1. Use the dipstick (A, Figure 5) to check the engine oil level. If necessary add engine oil. Check engine manufacturer's owner's manual for oil recommendations.

Check Hydraulic Oil Level

NOTE: Do not open the hydraulic oil reservoir unless oil is being added.

1. Visually check that the hydraulic oil level is filled to the recess area (A, Figure 6) of the hydraulic oil reservoir.
3. If necessary, remove the reservoir cap (B, Figure 6) and add either Mobil 1™, 15W-50 synthetic oil or Castrol Syntec™ 5W-50 oil. **DO NOT** use conventional oils. Make sure area around the filler neck is free of dust, dirt, or other debris.

Check Antifreeze Level

The engine coolant level and quality should be checked before each use, when the engine is cool and off.

1. Remove the radiator pressure cap (A, Figure 7) to check the fluid level.
2. Coolant level should be 1/2" (13mm) below the bottom of the filler tube. If coolant level is low, add coolant until level is 1/2" (13mm) below the bottom of the filler tube. Proper coolant mix is a 50/50 mixture of ethylene glycol and distilled water. See engine owners manual for antifreeze specifications.
3. Check the coolant level in the radiator overflow bottle (Figure 8). If coolant level is low, add coolant until level is at the "FULL" line. Proper coolant mix is a 50/50 mixture of ethylene glycol and distilled water. See engine owners manual for antifreeze specifications.

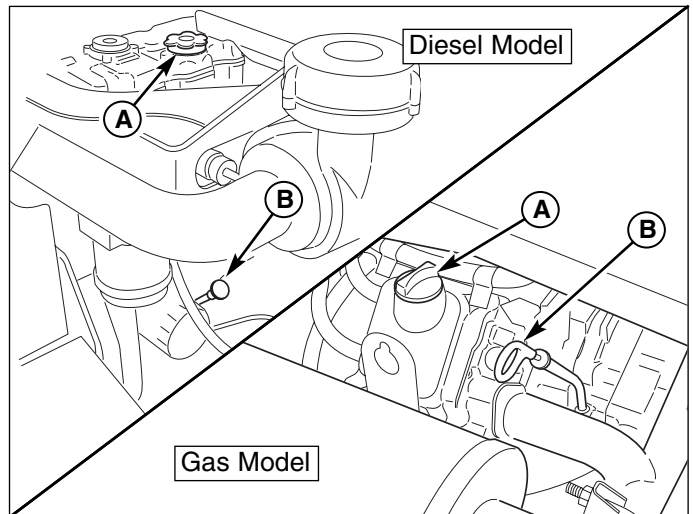


Figure 5. Check Engine Oil Level

- A. Oil Fill Cap
- B. Crankcase Dip Stick

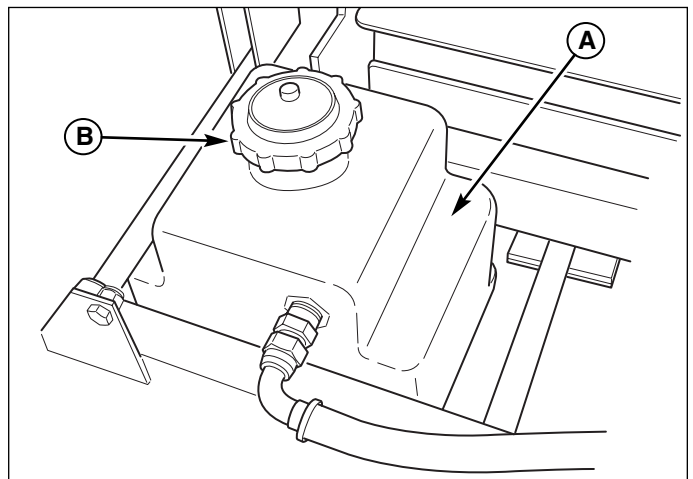


Figure 6. Hydraulic Oil Reservoir

- A. Tank Recess ("FULL" level)
- B. Cap

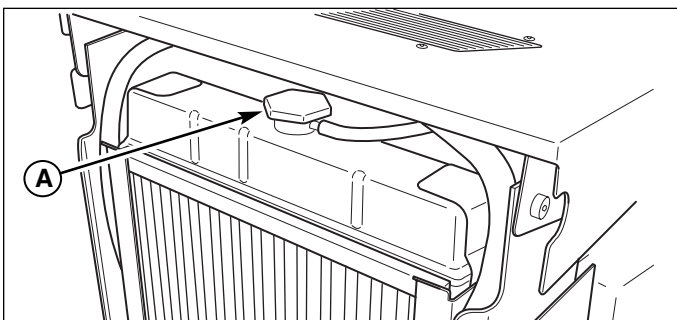


Figure 7. Check Antifreeze Level

- A. Radiator Pressure Cap

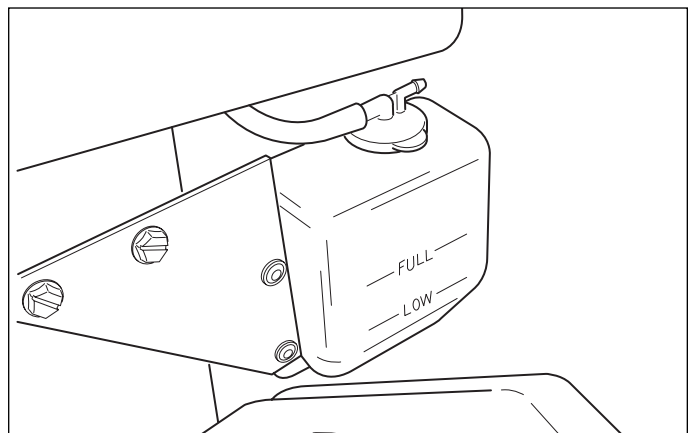


Figure 8. Radiator Expansion Tank

Setup



Check Tire Pressures

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

Tire	Pressure
Front	25 psi (172 kPa)
Rear	18 psi (124 kPa)

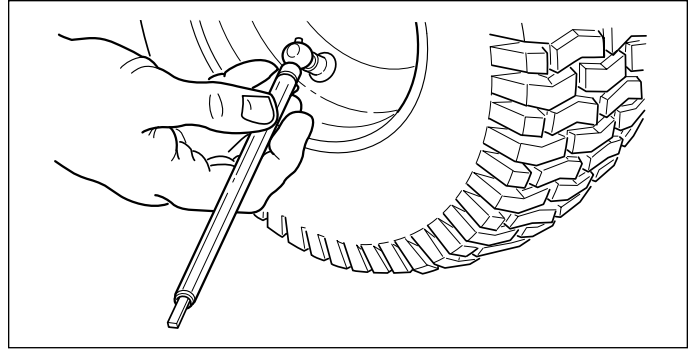


Figure 9. Checking Tire Pressure

Setup



Check Torque - Mower Blades

! WARNING

Mower blades are sharp. For your personal safety, do not handle mower blades with bare hands. Careless or improper handling of blades may result in serious injury. Blade mounting bolts must each be installed with a flat washer then securely tightened. Torque blade mounting bolts to 70 ft.lbs. (94 N.m.)

1. Check that blades are installed with the tabs pointing up toward deck as shown in Figure 10. Use a 1" wrench on the flats of the spindle shaft and a 15/16" wrench on the blade bolt, torque bolts to 70 ft.lbs. (94 N.m.).

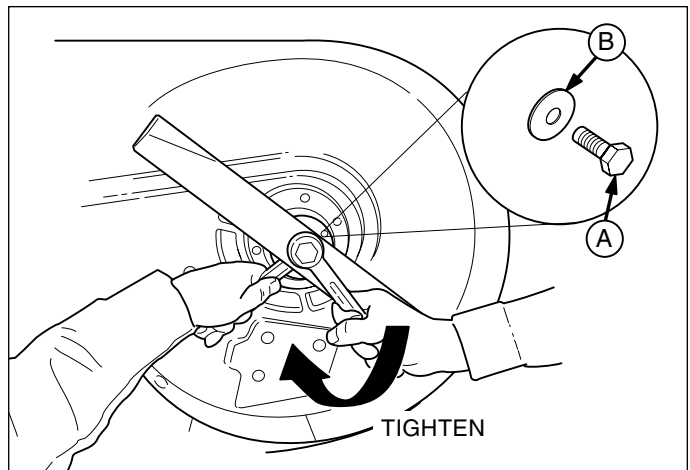


Figure 10. Check Blade Torque

- A. Blade Bolt
- B. Flat Washer



Adjust Deck Lift Rod Timing

1. Park machine on a flat, level surface. Disengage the PTO, stop the engine and engage the parking brake. Rear tires must be inflated to 18 psi (1,24 bar); front tires to 25 psi (1,72 bar).
2. Install the cutting height adjustment pin in the 3-3/4" (9,5 cm) position. See Figure 11.
3. To check the lift rod timing, measure and record the distance between the lift pivots and the rod pivots. Repeat for other side of unit. See Figure 12.
4. If the measurements for the rods and pivots are equal, no further adjustment is required. If the measurements are NOT equal (greater than 1/8" (3,17mm) difference), adjustment is required, continue with Step 5.
5. Refer to Figure 12. To adjust the lift rods, adjust the 5/8" hex nuts on either side of the front lift pivot until the measurements are equal. Repeat for other side. Make sure the nylon lock nut on the end of the rod towards the rear of the machine is loose to allow the rod to turn in the rear lift pivot.
6. Refer to Figure 13. Measure the distance from the front lift pivot to the ground and from the front chain anchor bolt to the ground. If the measurements are equal, no further adjustment is required. If the measurements are NOT equal (greater than 1/8" (3,17mm) difference), adjustment is required, continue with Step 7.
7. Raise the seat plate to access the center lift link (A, Figure 14).
8. Loosen the jam nut (C) on the lift clevis (D) and turn the adjuster bolt (B) until the measurements are equal. Tighten the jam nut against the lift clevis.

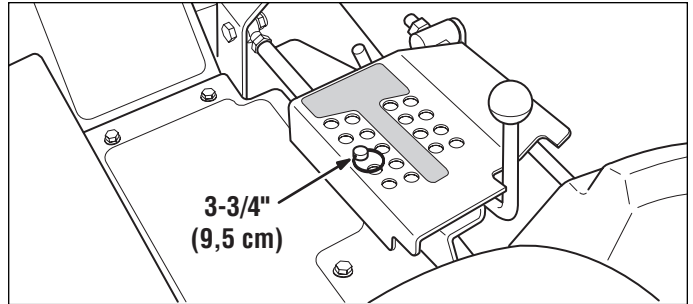


Figure 11. Deck Height Pin Position

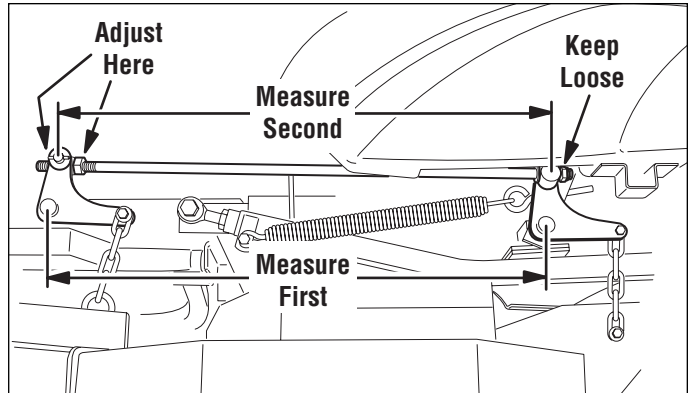


Figure 12. Measure & Adjust Lift Rod Timing

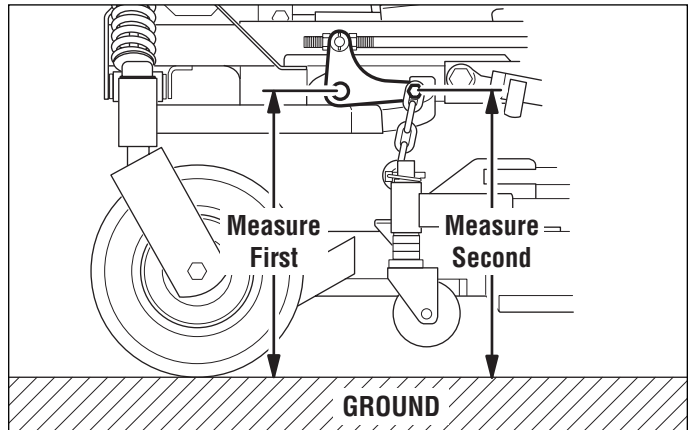


Figure 13. Measure Front Lift Pivot

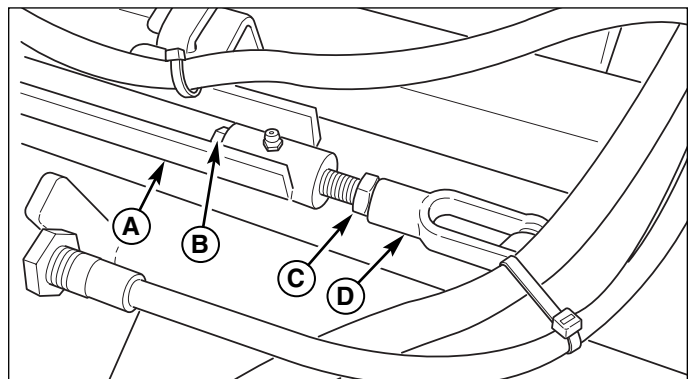


Figure 14. Center Lift Link Adjustment

- A. Center Lift Link
- B. Adjuster Bolt
- C. Jam Nut
- D. Lift Clevis

IS4500Z Series - 28 HP Diesel - 35 HP Gas - 61" Mower Deck

Setup



Level the Mower Deck

NOTE: Before adjusting the deck level, the deck lift rod timing must be checked and/or adjusted.

1. Park machine on a flat, level surface. Disengage the PTO, stop the engine and engage the parking brake. Rear tires must be inflated to 18 psi (1,24 bar); front tires to 25 psi (1,72 bar).
2. Install the cutting height adjustment pin in the 4" (10,2 cm) position. See Figure 15.
3. Place 2 x 4 blocks under each corner of the mower deck with the 3-1/2" sides being vertical. Place a 1/4" (0,64 cm) thick spacer on top of the rear 2 x 4 blocks. See Figure 16.
4. Adjust the front eyebolts until the chains are tight and the deck is still resting on the 2 x 4's. Tighten jam nuts. See Figure 17.
5. Loosen the nuts and allow the rear of the deck to rest on the 2 x 4's and 1/4" spacers. Slide the chains in the slots until the chains are tight and tighten the nuts. See Figure 17.
6. Remove all 2 x 4 blocks and spacers from under the mower deck.

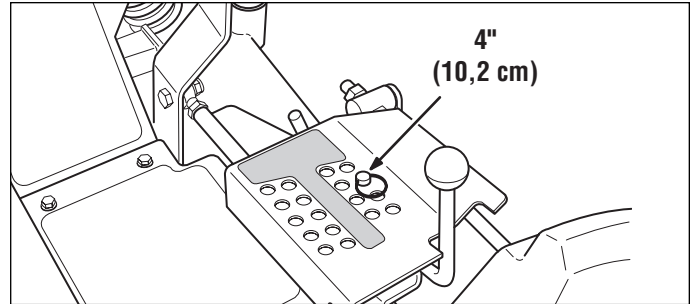


Figure 15. Deck Height Pin Position

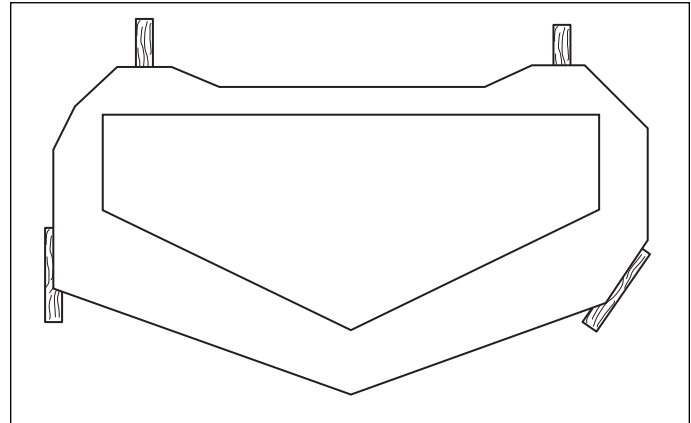


Figure 16. 2 x 4 Locations

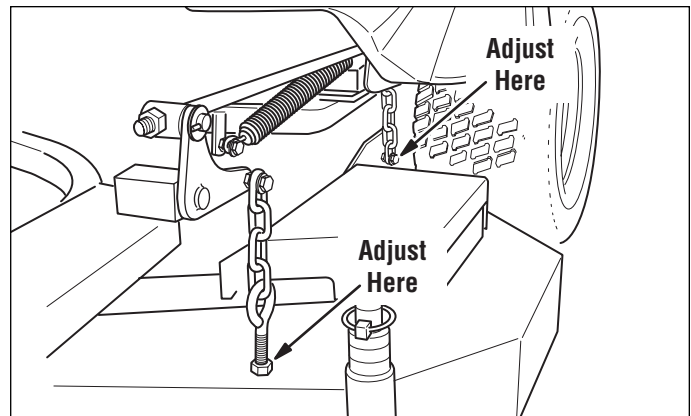


Figure 17. Deck Level Adjustment

Setup



Deck Lift Spring

The deck lift springs (A, Figure 18) are factory set to provide optimal lifting performance.

Although it is fastened with an adjustable anchor, this is NOT AN ADJUSTMENT POINT.

DO NOT attempt to adjust the spring length or lifting performance will be compromised.

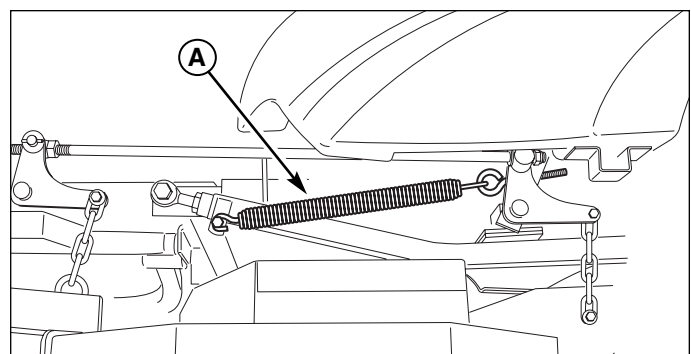


Figure 18. Deck Lift Spring Location

A. Deck Lift Spring

Setup

Check PTO Drive Belt

1. Release the hood cam latches and raise the hood until it locks in place.
2. Release the rear guard cam latches and lower or remove the rear guard.
3. Make sure the belt is routed exactly as shown in Figure 20.
4. If the belt is not routed properly, using a 3/4" box end wrench on the nut of the spring-loaded idler pulley (A, Figure 19), rotate the wrench **CLOCKWISE** to release the tension on the PTO drive belt.
5. Remove the belt from the stationary idler pulley (B, Figure 196) and carefully release the tension on the wrench.
6. Follow the illustration in Figure 20 carefully and make sure the belt twists in the correct direction.
7. Again, rotate the wrench **CLOCKWISE** and install the belt on the stationary idler pulley.

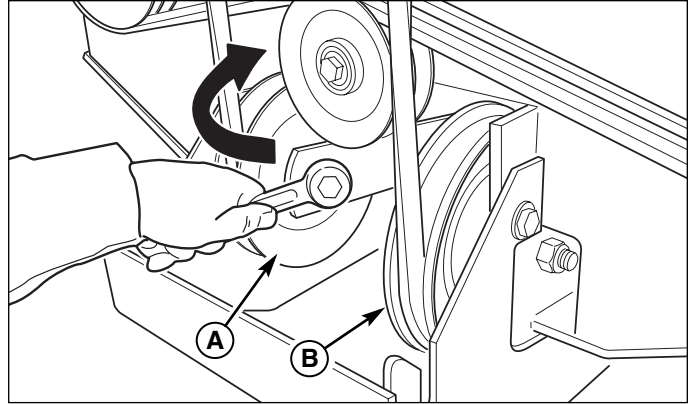


Figure 19. PTO Drive Belt
 A. Spring Loaded Idler Pulley
 B. Stationary Idler Pulley

! WARNING

Use extreme caution when rotating the idler pulley with the wrench, due to the increased tension in the spring as the idler pulley is being rotated. Injury may result if the wrench is prematurely released while the spring is under tension.

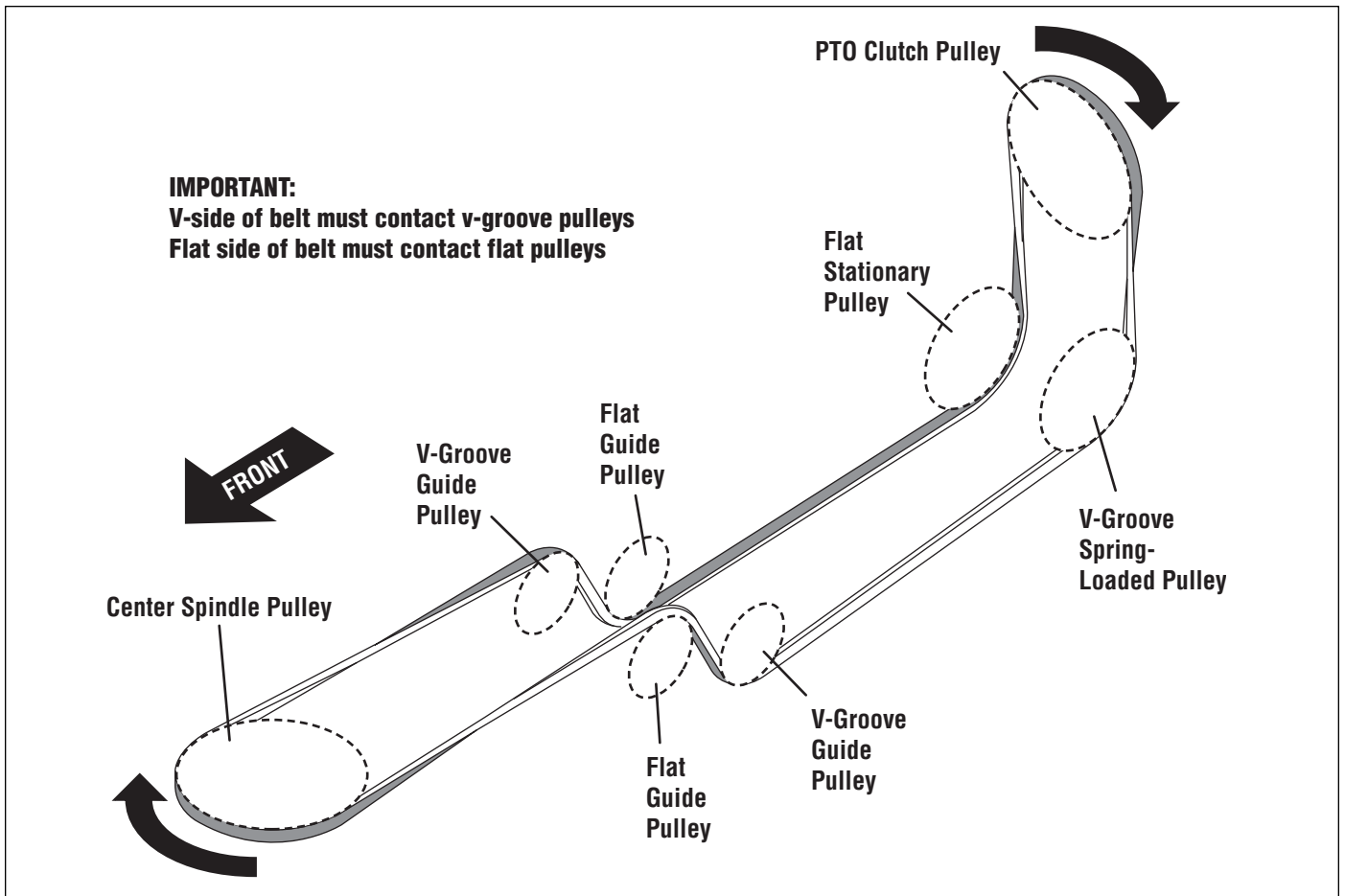


Figure 20. PTO Drive Belt Routing
 NOTE: Gray areas indicate the flat side of the belt.

Setup

Check Spindle Drive Belt

1. Remove the mower deck guards.
2. Make sure the V-side of the belt runs in the pulley grooves (Figure 21).
3. If belt is not properly seated, use a 1/2" breaker bar, and place the square end in the square hole located in the end of the idler arm (A, Figures 22). Carefully rotate the breaker bar **CLOCKWISE**, which will relieve the tension on the belt exerted from the idler arm.

! WARNING

Use extreme caution when rotating the idler arm with the breaker bar, due to the increased tension in the spring as the idler arm is being rotated. Injury may result if the breaker bar is prematurely released while the spring is under tension.

4. Re-seat belt and carefully release the tension on the breaker bar.
5. Reinstall the mower deck guards.

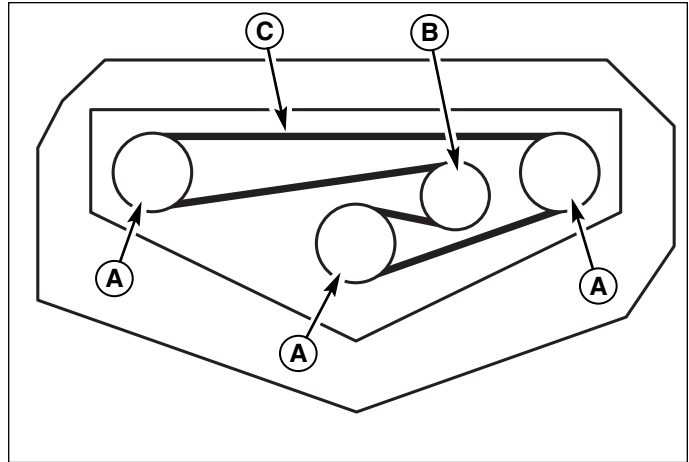


Figure 21. Spindle Drive Belt Removal

- A. Spindle Pulley
- B. Idler Pulley
- C. Drive Belt

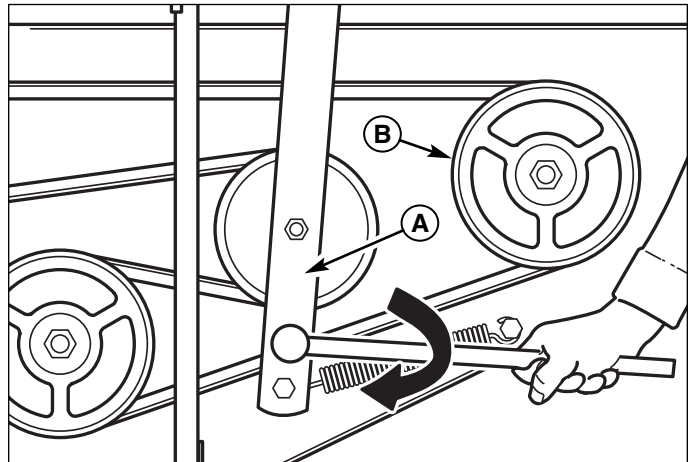


Figure 22. Spindle Drive Belt Removal

- A. Idler Arm
- B. Trim Side Spindle Pulley



Lubricate the Tractor and Mower

Lubricate the unit at the locations shown in Figure 23 through 28.

Grease: 

Use grease fittings when present. Disassemble parts to apply grease to moving parts when grease fittings are not installed.

Not all greases are compatible. Ferris Red Grease (P/N 22285) is recommended, automotive-type high-temperature, lithium grease may be used when this is not available.

Oil: 

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

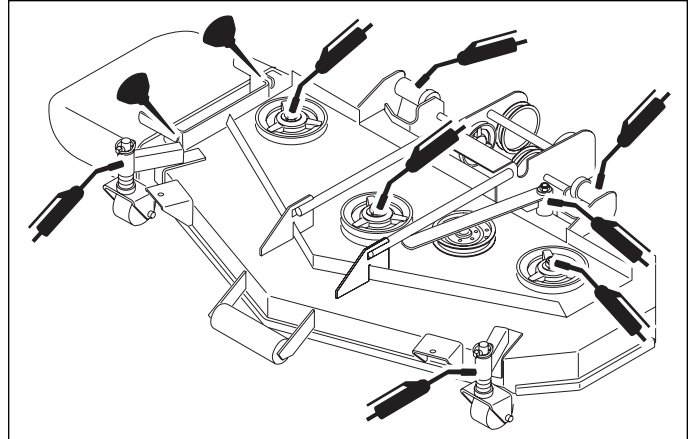


Figure 25. Deck Lubrication

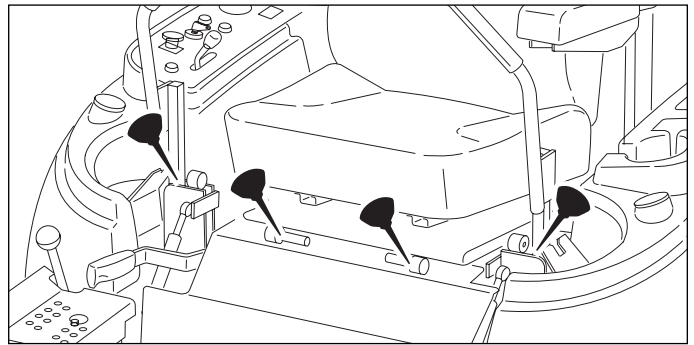


Figure 26. Control Handle Pivots & Seat Pivots

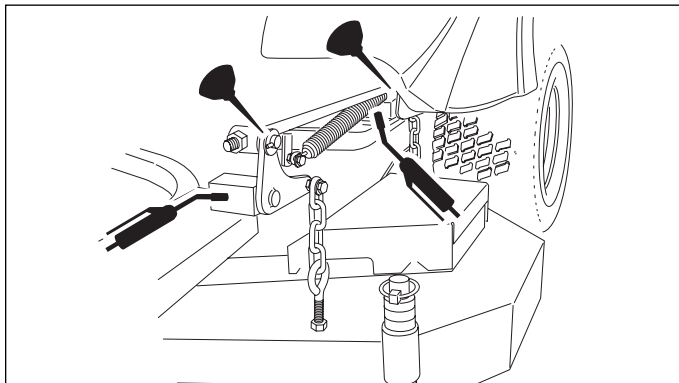


Figure 23. Deck Lift Pivots

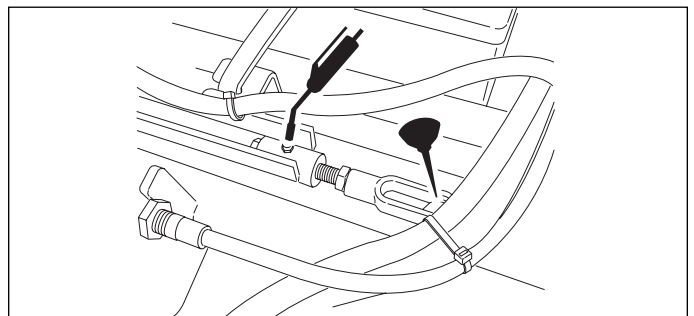


Figure 27. Center Lift Link

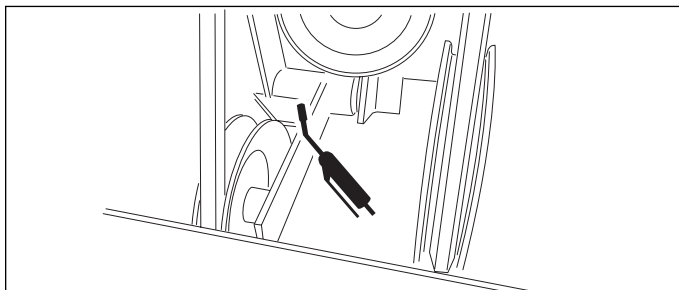


Figure 24. Mule Drive Idler Arm

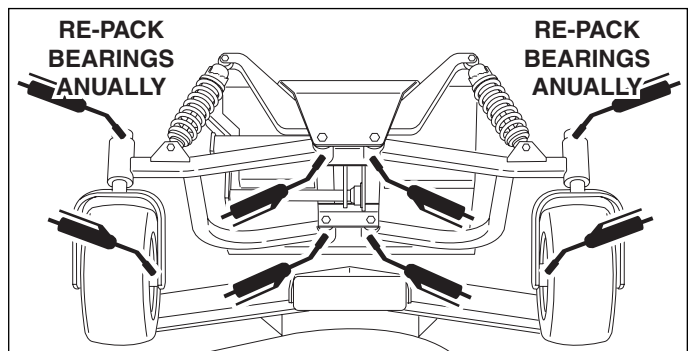


Figure 28. Casters, Wheels & Suspension Arms

IS4500Z Series - 28 HP Diesel - 35 HP Gas - 61" Mower Deck

Setup



Adding Fuel

To add fuel:

1. Turn fuel shut off valves, located on the bottom of the fuel tanks, to the "ON" position.
2. Remove the fuel cap (A, Figure 29).
3. Fill the tank to the bottom of the fill tube. This will leave room in the tank for fuel expansion. Refer to your engine manual for specific fuel recommendations.
4. Install and hand tighten the fuel cap.
5. Repeat same process for opposite tank.

NOTE: The fuel tanks are tied together through a "tee" in the supply lines. By filling only one tank, the level will balance between the two tanks, effectively having 1/2 tank of fuel for each side. The fuel transfer through the "tee" is slow, so it is recommended that both tanks have fuel added to them.

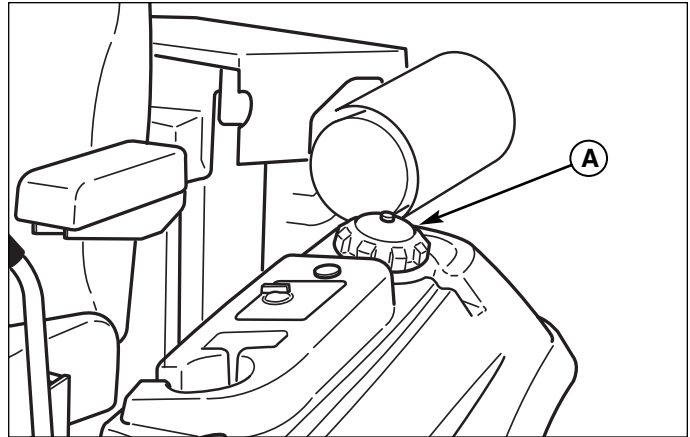


Figure 29. Fuel Tank Fill

A. Fuel Tank Cap

Setup



Priming The Fuel System

Priming the fuel system fills the fuel filters and removes any air bubbles from the fuel system.

On the water separator:

1. Using a 1/2" wrench, loosen the vent screw (A, Figure 30) on the water separator 2-3 revolutions.
2. Unscrew the priming hand pump (B) located on top of the water separator. Operate the hand pump up and down until fuel that is free of air flows from the vent.
3. Tighten the vent screw to 4.5 ft/lbs (6 N.m.). DO NOT OVER TIGHTEN!

On the engine fuel filter:

1. Using the appropriate size wrench, loosen the vent screw (C) on the engine fuel filter 2-3 revolutions.
2. Operate the hand pump up and down until fuel that is free of air flows from the vent.
3. Tighten the vent screw to 4.5 ft/lbs (6 N.m.). DO NOT OVER TIGHTEN!
4. Tighten the priming fuel pump finger tight.
5. Start the engine. (See STARTING THE ENGINE). If the engine will not start, further priming is necessary. If the engine starts but misfires or continues to emit smoke, further priming is necessary.
6. If the engine starts but runs rough, continue to run the engine at low idle until the engine runs smoothly.

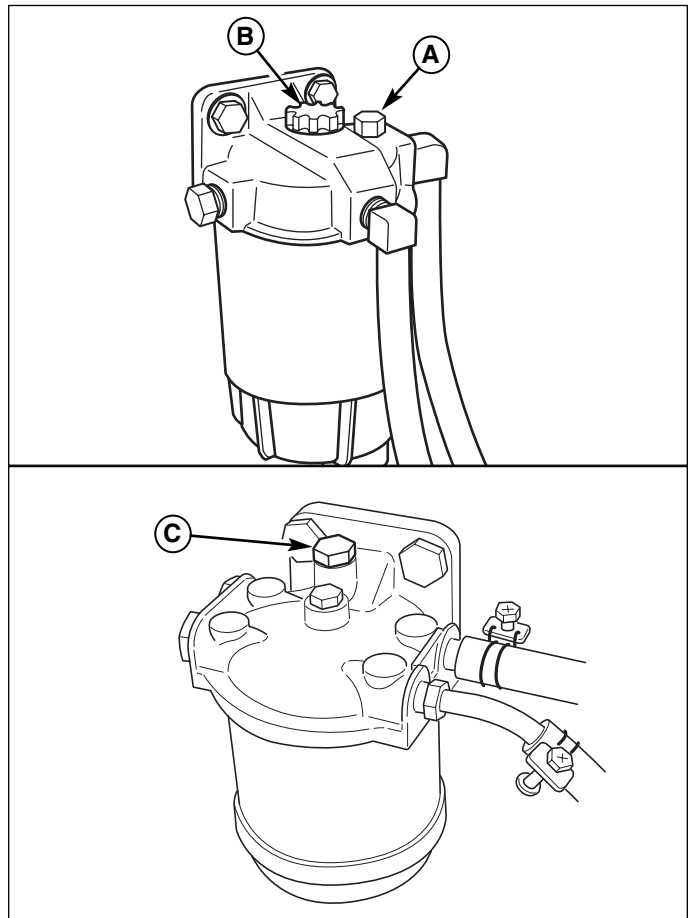


Figure 30. Fuel System Priming

A. Water Separator Vent Screw
B. Priming Hand Pump
C. Engine Fuel Filter Vent Screw

Setup



Starting The Engine (Diesel Model)

1. While sitting in the operators seat, engage the parking brake and make sure the PTO switch is disengaged and the ground speed control levers are locked in the neutral position.
2. Set the throttle to middle position (set throttle to FULL when starting in cold weather)
3. Turn the key to the HEAT position. Hold the key to turn the glow plug indicator light on and activate the glow plugs.
4. Wait until the glow plug indicator light turns off, then turn the key to START. If the engine does not start immediately, move the throttle control to FULL.

NOTE: Do not crank the engine continuously for more than 30 seconds. Allow the starter motor to cool for two minutes before cranking the engine again.

5. After the engine starts, move the engine throttle control to SLOW. Warm up the engine by running it for at least a minute.
6. Move the throttle to FULL before engaging the PTO switch or driving the machine.

Setup



Starting The Engine (Gas Model)

1. While sitting in the operators seat, engage the parking brake and make sure the PTO switch is disengaged and the motion control handles are locked in the NEUTRAL position.
2. NOTE: A warm engine may not require choking.
Set the engine throttle control to FAST throttle position. Then fully close the choke by pulling the knob OUT fully.
3. Insert the key into the ignition switch and turn it to START.
4. After the engine starts, gradually open the choke (push knob down fully). Warm up the engine by running it for at least a minute.
5. Move the throttle to FULL before engaging the PTO switch or driving the machine.

Setup



Perform Safety Checks

WARNING

Disengage the PTO, stop the engine, set the parking brake, and wait for moving parts to stop before leaving operator's position for any reason.

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

Functional Tests

1. Check the tractor for loose bolts, screws, nuts, etc.
2. Start the engine and check all controls for proper operation: ground speed control levers, parking brake, throttle cable, electric PTO clutch, etc.
3. Stop the engine and check for fluid leaks: motor oil, fuel, hydraulic oil, and antifreeze.
4. If any control fails to operate properly during testing or seems to be out of adjustment, check and readjust it according to the following Adjustments section.



SAFETY INTERLOCK SYSTEM

This unit is equipped with safety interlock switches. These safety systems are present for your safety, do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Test 1 — Engine should NOT crank if:

- PTO switch is engaged, OR
- Parking brake is not engaged, OR
- Motion control handles are not in the NEUTRAL position, OR
- Operator is not on the seat.

Test 2 — Engine SHOULD crank if:

- PTO switch is NOT engaged, AND
- Parking brake is engaged, AND
- Motion control handles are locked in the NEUTRAL position, AND
- Operator is on the seat.

Test 3 — Engine should SHUT OFF if:

- Operator rises off seat with PTO engaged, OR
- Operator rises off seat with parking brake disengaged.
- Operator moves motion control handles inward before disengaging parking brake.

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within seven (7) seconds after electric PTO switch is turned off (or operator rises off seat). If mower drive belt does not stop within seven (7) seconds, see your dealer.

NOTE: Once the engine has stopped, PTO switch must be turned off, parking brake must be engaged, and the motion control handles must be locked in the NEUTRAL position after the operator returns to the seat in order to start the engine.



WARNING

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

Adjustment Procedures



Seat Adjustment

See Figure 31. The seat can be adjusted fore and aft. Move the lever forward, position the seat as desired, and release the lever to lock the seat into position.

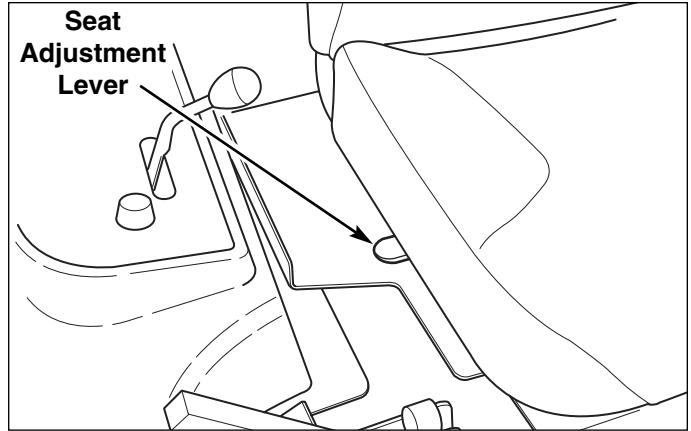


Figure 31. Seat Adjustment



Ground Speed Lever Adjustment

The control levers can be adjusted in three ways. The alignment of the control levers, the placement of the levers (how close the ends are to one another) and the height of the levers can be adjusted.

HANDLE ALIGNMENT

Loosen the mount hardware (A, Figure 32) and pivot the lever(s) (C, Figure 32) fore or aft to align with each other.

HANDLE PLACEMENT

Loosen the jam nuts and adjust the placement bolt (B, Figure 32) in or out to properly adjust the lever end spacing.

HANDLE HEIGHT

Remove the mounting hardware (A, Figure 32) and reposition the handle either up or down from its original position. You will need to readjust the handle alignment as described above.

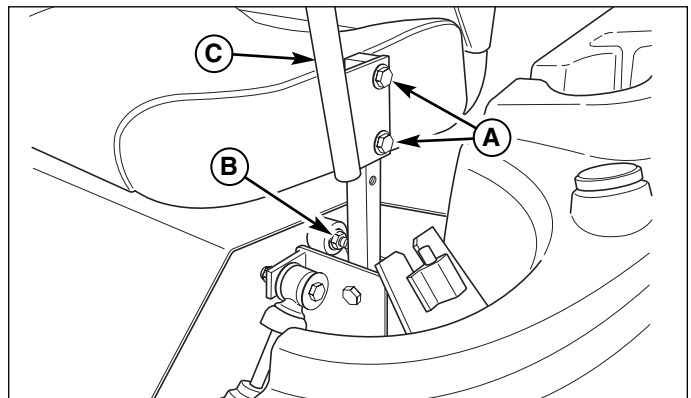


Figure 32. Control Lever Adjustment

- A. Alignment Hardware
- B. Placement Hardware
- C. Ground Speed Control Lever



Speed Balancing Adjustment

If the rider veers to the right or left when the ground speed control levers are in the maximum forward position, the top speed of each of these levers can be balanced by turning the adjustment bolt(s) (A, Figure 33). Only adjust the speed of the wheel that is traveling faster.

To Reduce the Speed of the Faster Wheel

1. Loosen the flange nuts.
2. turn the top speed adjustment bolt COUNTER-CLOCKWISE to reduce the speed.
3. Retighten the flange nuts when adjustment is complete

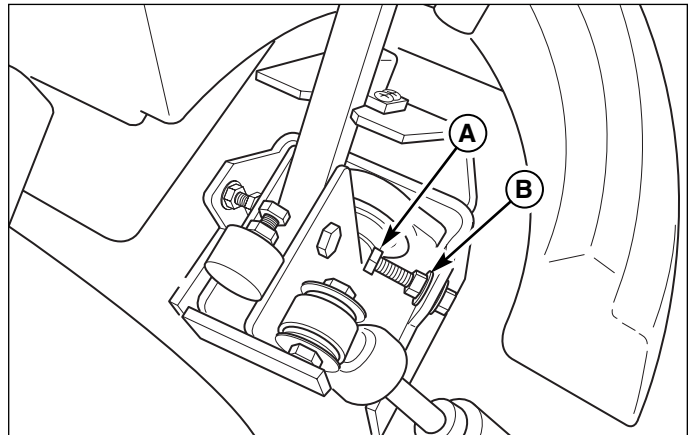


Figure 33. Top Speed Adjustment

- A. Top Speed Adjustment Bolt
- B. Flange Nut

! WARNING

DO NOT adjust the tractor for a faster overall speed forward or reverse than it was designed for.



Neutral Position & Return Spring Adjustment

To determine if it is necessary to adjust the neutral position, perform the following steps.

1. Disengage the PTO, engage the parking brake and turn off the engine.
2. Move the ground speed control levers in the operating position, pull levers rearward and release.
3. Move the ground speed control levers towards the neutral position. If the levers do not align with the notches in the neutral lock plate, it is necessary to adjust the reverse return bolts (A, Figure 34).

Neutral Position Adjustment

1. Loosen the jam nut (D, Figure 34) locked against the clevis.
2. Turn the reverse return bolt (A) clockwise to adjust handle rearward, counter-clockwise to adjust handle forward.
4. Pull lever rearward and release to check position again. Adjust as necessary to align levers with notches.

It is important to note that after every adjustment of the reverse return bolt, the lever must be pulled rearward and released to properly check the neutral position.

5. Once the lever alignment has been adjusted, lock jam nut against the clevis.

Return Spring Adjustment

After adjusting the neutral position, lock the levers in the neutral position and measure the reverse return spring (B, Figure 34) length. This should be 2-3/8" (6,03 cm) long. If not, hold the reverse return bolt (A) with a wrench while turning the spring position nut (C) until the measurement is achieved.

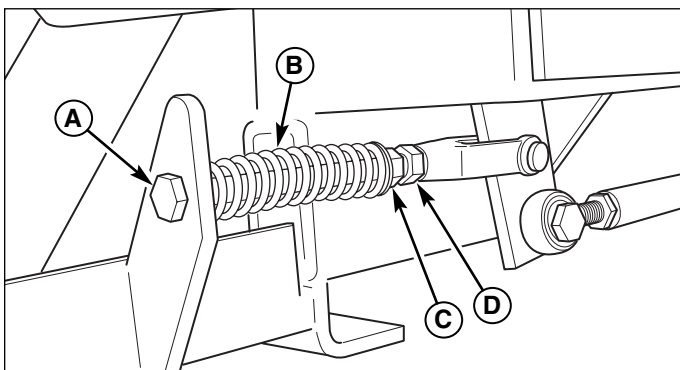


Figure 34. Neutral Spring Return Adjustment

- A. Reverse Return Bolt
- B. Reverse Return Spring
- C. Spring Position Nut
- D. Jam Nut



Neutral Adjustment

If the tractor "creeps" while the ground speed control levers are locked in NEUTRAL, then it may be necessary to adjust the control linkage.

NOTE: Perform this adjustment on a hard, level surface such as a concrete floor. The neutral position MUST be checked and adjusted BEFORE performing a neutral adjustment.

1. Disengage the PTO, engage the parking brake and turn off the engine.
2. Loosen the jam nuts (B, Figure 35) and turn the adjustment linkage (A) to adjust. If the machine creeps forward, turn the linkage CLOCKWISE (while standing at the rear of the machine, facing forward), if the machine creeps backward, turn the linkage COUNTER-CLOCKWISE.
3. Lock the jam nuts (B) when neutral is achieved.

NOTE: This adjustment should NOT be performed while the machine is running. It may take several attempts to achieve neutral, depending upon how much the machine creeps.

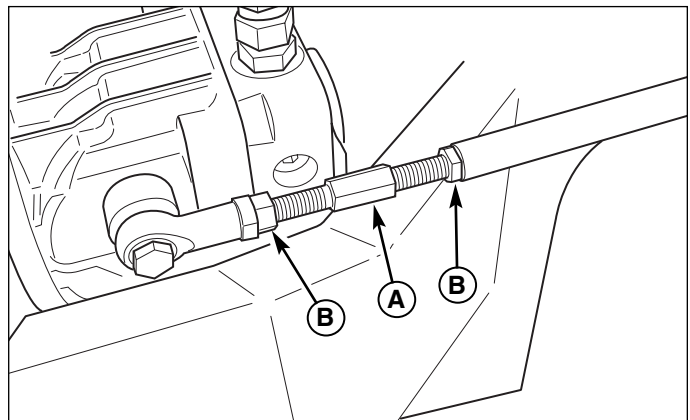


Figure 35. Neutral Adjustment

(Left-hand side shown)

- A. Control Linkage
- B. Jam Nuts



Parking Brake Adjustment

1. Disengage the PTO, stop the engine, block the front wheels, remove the ignition key, and engage the parking brake.
2. Jack up the rear of the machine and secure with jackstands. Remove both drive tires.
3. With the parking brake engaged, measure the compressed spring length (see Figure 32). The spring should be 2-1/8" - 2-1/4" (5,4 - 5,7 cm) long when compressed.
4. If the spring does not measure 2-1/8" - 2-1/4" (5,4 - 5,7 cm), release the parking brake and turn the adjustment nut (B) to adjust the spring length
5. Engage the parking brake and remeasure the spring length. Continue to adjust the nut as required.

CAUTION

Do not adjust the spring to be shorter than 2-1/8" (5,4 cm) when compressed. This may damage the brake caliper.

6. With the parking brake engaged, adjust the set collar position until 3/16" (4,7 mm) gap is measured between the set collar and brake link.
7. Reinstall the drive tires. Torque the lug bolts to 85-95 ft/lbs. (115-129 Nm). Remove the jackstands from under the machine.

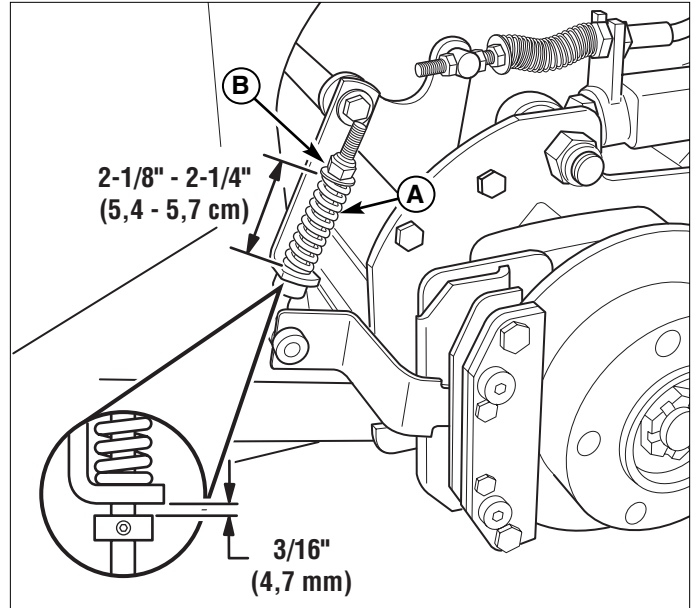


Figure 36. Parking Brake Adjustment

- A. Brake Spring
- B. Adjustment Nut



Mowing Height Adjustment

The cutting height adjustment pin (A, Figure 37) controls the mower cutting height. The cutting height is adjustable between 1-1/2" (3,8 cm) and 6" (15,2 cm) in 1/4" (0,64 cm) increments.

1. Depress the deck lift foot pedal (B, Figure 37) until it locks into the 6" (15,2 cm) position.
2. Place the cutting height adjustment pin in the desired cutting height.
3. Depress the deck lift foot pedal then push the lock lever (C) towards the right to release the lock.
4. Release the deck lift foot pedal until it comes to rest against the cutting height adjustment pin.

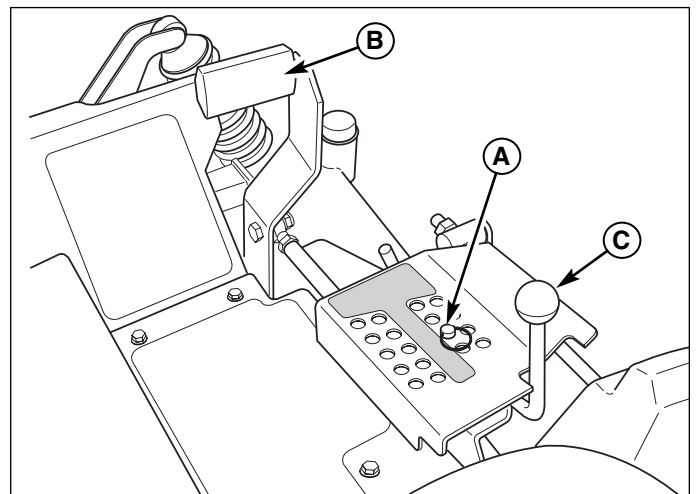


Figure 37. Mowing Height Adjustment

- A. Cutting Height Adjustment Pin
- B. Deck Lift Foot Pedal
- C. Deck Lift Lock lever

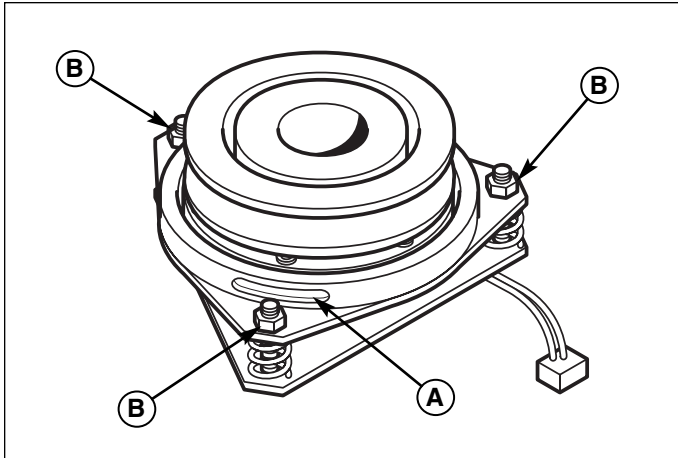


Figure 38. PTO Clutch Adjustment

- A. Adjustment Window (Qty. 3, one shown)
- B. Adjustment Nut

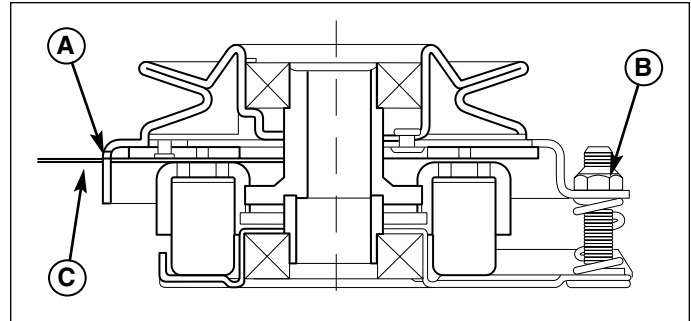


Figure 39. Adjust PTO Clutch

- A. Window
- B. Adjustment Nut
- C. .016"-.018" (0,40 - 0,45 mm) Feeler Gauge



PTO Clutch Adjustment

Check the PTO clutch adjustment after the initial 25 hour break-in period and then after every 100 hours of operation. Also perform the following procedure if the clutch is slipping or will not engage, or if a new clutch has been installed.

1. Remove key from ignition switch to prevent the possibility of accidental starting while the PTO is being adjusted.
2. See Figure 38. Note the position of the 3 adjustment windows (A) in the side of the brake plate and the nylock adjustment nuts (B).
3. Insert a .016"-.018" (0,40 - 0,45 mm) feeler gauge (C) through each window, positioning the gauge between the rotor face and the armature face as shown in Figure 39.
4. Alternately tighten the adjustment nuts (B, Figure 38) until the rotor face and armature face just contacts the gauge.
5. Check the windows for an equal amount of tension when the gauge is inserted and removed, and make any necessary adjustments by tightening or loosening the adjustment nuts.

NOTE: The actual air gap between the rotor and armature may vary even after performing the adjustment procedure. This is due to dimensional variations on component parts, and is an acceptable condition.

6. Check the mower blade stopping time. The mower blades and mower drive belt should come to a complete stop within seven (7) seconds after the electric PTO switch is turned off.

⚠ WARNING

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

Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within seven (7) seconds after electric PTO switch is turned off.

1. With parking brake engaged, PTO disengaged and an operator in the seat, start the engine engine.
2. Have an assistant observe the mower drive belt through the open end of the left-hand arbor cover. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If the mower drive belt does not stop within seven (7) seconds, perform the PTO Clutch Adjustment. If the belt still does not stop within seven (7) seconds, see your dealer.



Suspension Adjustment

This unit is equipped with adjustable shock assemblies. The shocks can be adjusted to vary the amount of pre-load applied to the springs. This allows the operator to customize the ride according to operator's weight and/or operating conditions.

Less Pre-Load:

- Light operator weight
- Softer, more cushioned ride
- Best for relatively flat terrain

More Pre-Load:

- Heavy operator weight
- Stiffer, more rigid ride
- Better handling and greater stability on hilly terrain

To adjust the spring pre-load:

1. Locate the pe-load adjuster collar on the shock assembly. See Figure 40.
2. Using the supplied spanner wrench (p/n 22853), insert the tip of the wrench into the notch in the pre-load adjuster. While holding the wrench in place with one hand, turn COUNTER-CLOCKWISE to increase the pre-load, turn CLOCKWISE to decrease the pre-load. Make sure that both front shocks are set to the same amount of pre-load. Make sure that both rear shocks are set to the same amount of pre-load.

NOTE: Spanner wrench is located under the seat, in between the water separator and the brake cable.

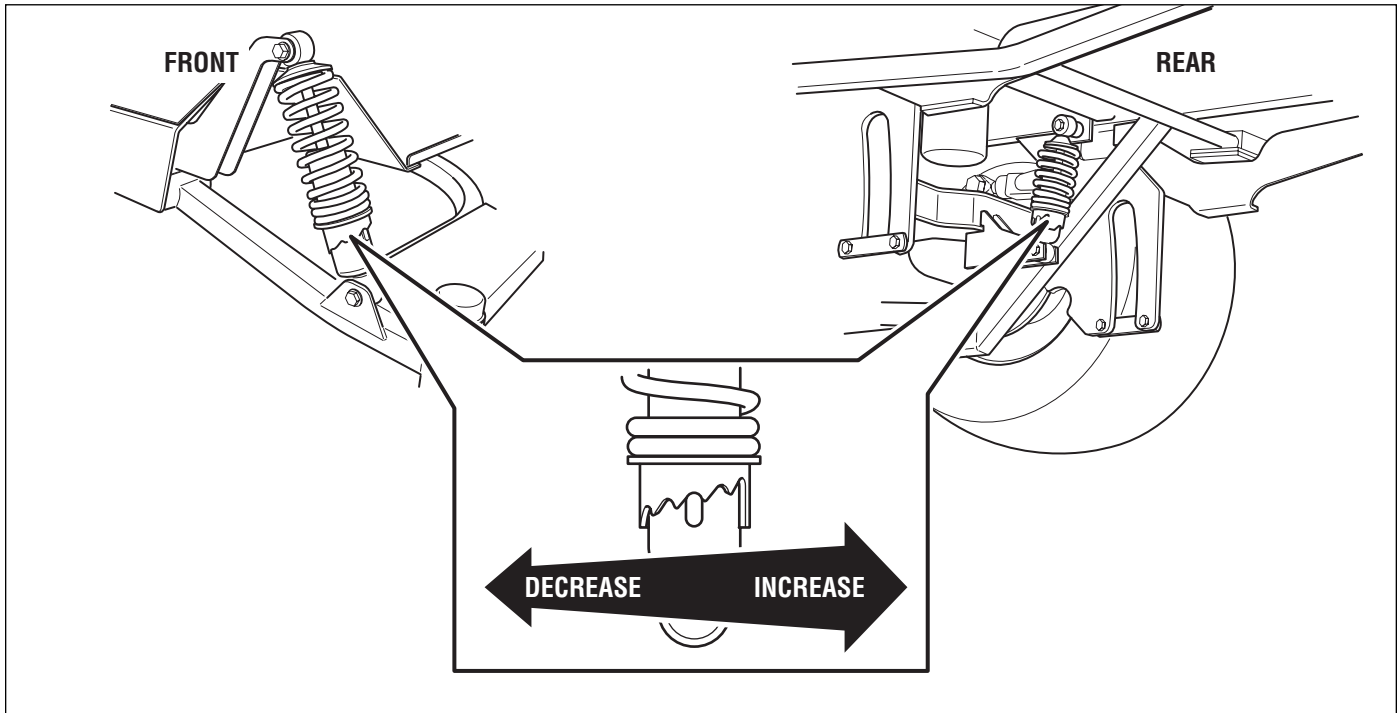


Figure 40. Adjust Spring Pre-Load



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