

Dealer Setup & Adjustment Instructions

ISX2200Z Series Zero-Turn Rider 52"/61" Mower Deck



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 PROCEDURES

Instructions in the Setup Procedures section provide the information necessary to fully assemble, test, and prepare the units described above for delivery to your customers. The location of normal lubrication points are also included in this section.

The QUICK SETUP LIST is provided in this booklet to help you identify and check that the items have been performed.

ADJUSTMENT PROCEDURES

Additional information concerning general adjustment procedures are included in this section.

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.

These Dealer Setup Instructions cover the following products:

Model:	Description:
5901992	ISX2200BVE2852SRDCE
5901993	ISX2200BVE2861SRDCE
5902029	ISX2200BVE2852SRDCE
5902030	ISX2200BVE2861SRDCE
5902091	ISX2200BVE2852SRDCE
5902092	ISX2200BVE2861SRDCE



5109726
Revision C

Quick Setup List

Setup Procedures	
☐	Uncrate the unit.
☐	Connect the battery cables.
☐	Install the ground speed control levers.
☐	Install the seat.
☐	Install the roll bar on the unit.
☐	Install the roll bar safety decals (export models only).
☐	Check engine oil level.
☐	Check / Fill transmission oil level.
☐	Check tire pressures.
☐	Configure the mower deck.
☐	Check mower blade bolt torque.
☐	Check the deck lift rod timing.
☐	Check and level the mower deck.
☐	Check the mower deck drive belt.
☐	Lubricate all grease and oil points.
☐	Check / Add fuel.
☐	Start the engine
PERFORM THE SAFETY CHECKS	
☐	Check for LOOSE HARDWARE .
☐	Check all OPERATOR CONTROLS .
☐	Perform SAFETY INTERLOCK SYSTEM CHECK .
Register Product	
☐	To register the product: log onto www.thepowerportal.com , select the appropriate brand, click "Sales & Marketing", select the "Product Registration" link, and then select "New Product Registration". Fill out and submit the online product registration form.

Ferris is a registered trademark of Briggs & Stratton.

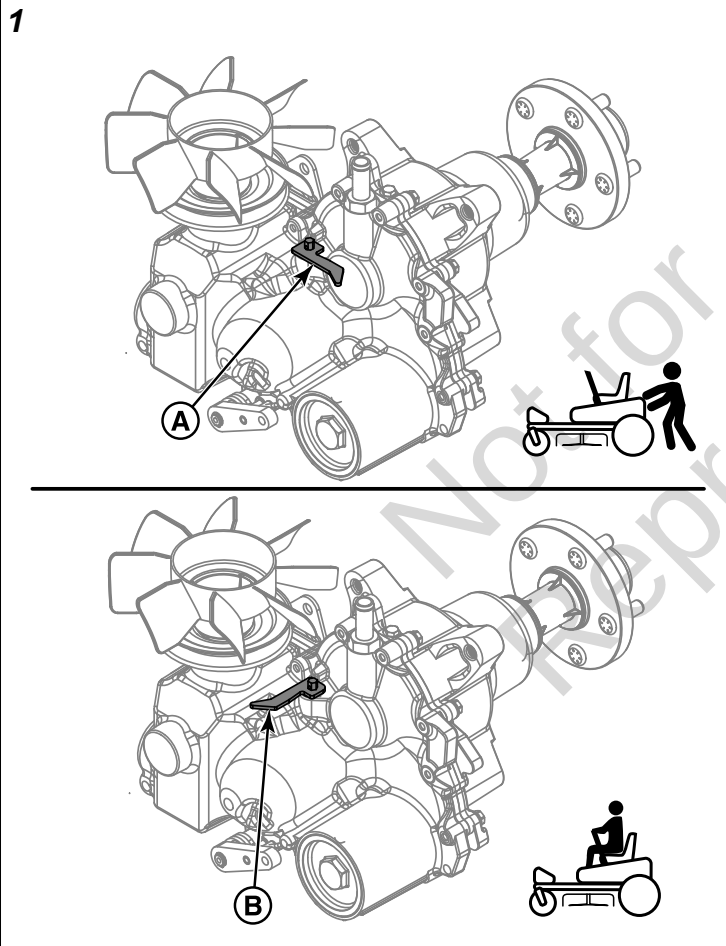
Setup Procedures

The items in this section provide the information necessary to fully assemble, test, and prepare the unit, that these instructions were included with, for delivery to your customer.

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

Uncrating

1. Locate the transmission release lever on top of the transmission of the unit. There is one transmission release lever on each transmission.
2. Rotate the transmission release levers to the “bypass” position (A, Figure 1). The transmission release levers will contact the bodies of the transmissions. The transmission release levers will be oriented so that they are perpendicular to the axles of the transmissions.



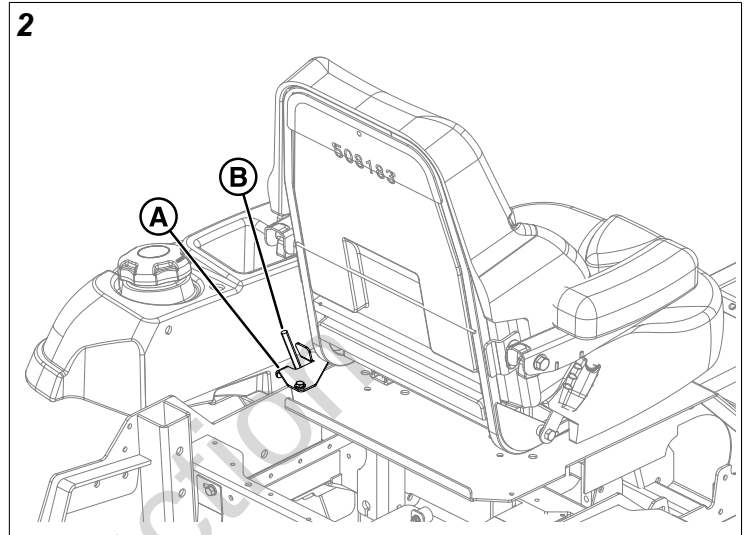
3. Push down on the parking brake lever to release the parking brake.
4. Be sure there are no nails or sharp objects on the bottom skid to puncture the zero-turn rider's tires. Roll the zero-turn rider forward off the bottom skid.
5. After moving the zero-turn rider, re-engage the transmissions by rotating the transmission release levers to the “closed” position (B). The transmission release levers will contact the bodies of the transmissions. The

transmission release levers will be oriented so that they are parallel to the axles of the transmissions.

Operating the Seat Latch

This model is equipped with a seat latch that is located by the left rear corner of the seat plate. Some models also feature a lockout plate.

1. To raise the seat plate, remove the lockout plate (A, Figure 2), if equipped, from the seat plate, move the seat latch (B) towards the front of the unit and then raise the seat plate.



2. The seat latch is spring loaded. When the seat plate is lowered back into place the seat latch will latch the seat plate in the down position. If equipped, install the lockout plate to the seat plate.

Connect the Battery Cables



DANGER

Be careful when handling the battery.

Battery acid can cause severe burns. Avoid contact with skin. Wear protective gear (safety goggles/face shield and gloves) when working with the battery.

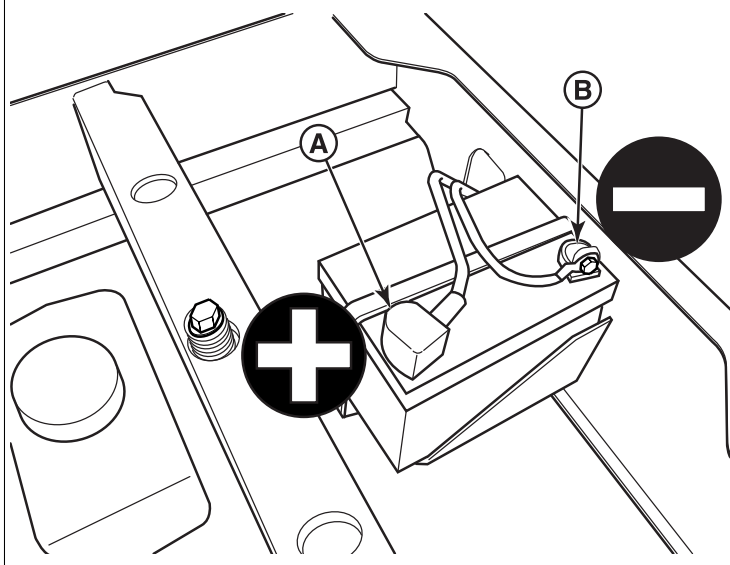
Keep the battery out of reach of children.

To avoid an explosion, keep open flames and sparks away from the battery, especially while charging.

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

1. Connect the red positive battery cable (A, Figure 3) to the positive battery post. Make sure that the cable boot completely covers the positive terminal.

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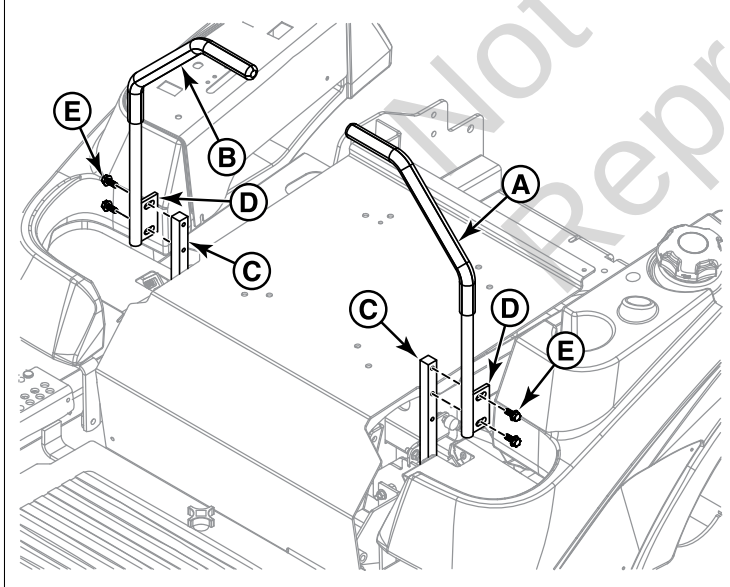
2. Connect the black negative battery cable (B) to the negative battery post.

Install the Ground Speed Control Levers

This procedure is only necessary if the ground speed control levers are not factory-installed on your unit.

There is a LEFT-HAND (A, Figure 4) and a RIGHT-HAND (B) control lever. When assembled to the base (C), the lever base (D) should be pointing toward the rear of the machine as shown in Figure 4.

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1. Remove the ground speed control levers and mounting hardware from the handle bar box.
2. Install the ground speed control levers (A & B) onto the control lever base using the hardware (E) supplied in the box. Prior to tightening the bolts, align the handles with each other.

Install the Seat

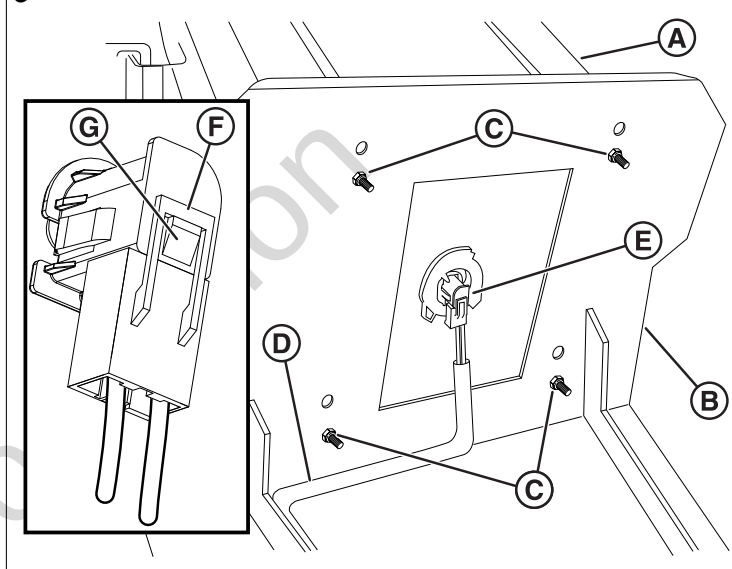
This procedure is only necessary if the seat is not factory-installed on your unit.

Some models are equipped with two sets of holes in the seat plate that the seat can be installed in. Use the forward set of holes to position the operator closer to the front of the machine and the rear set of holes to position the operator towards the rear of the machine. Determining what holes to use is based on the preferred operating position of the operator.

For models equipped with a remote oil tank: the seat must be installed in the forward set of holes.

1. Unpack the seat.
2. Install the seat (A, Figure 5) onto the seat mount plate (B) and secure with the 5/16 nylock flange nuts (C).

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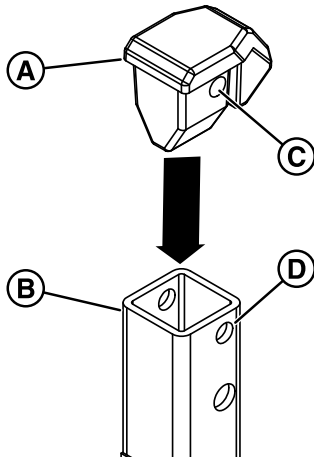
3. Connect the wire harness (D) to the seat switch (E) that is located in the bottom of the seat and make sure that the latch (F) is clipped on the switch lock (G).

Install the Roll Bar to the Unit

The roll bar assembly is installed in the roll bar pockets which are part of the main frame of the unit and are located behind the seat and in front of the engine on both sides of the unit.

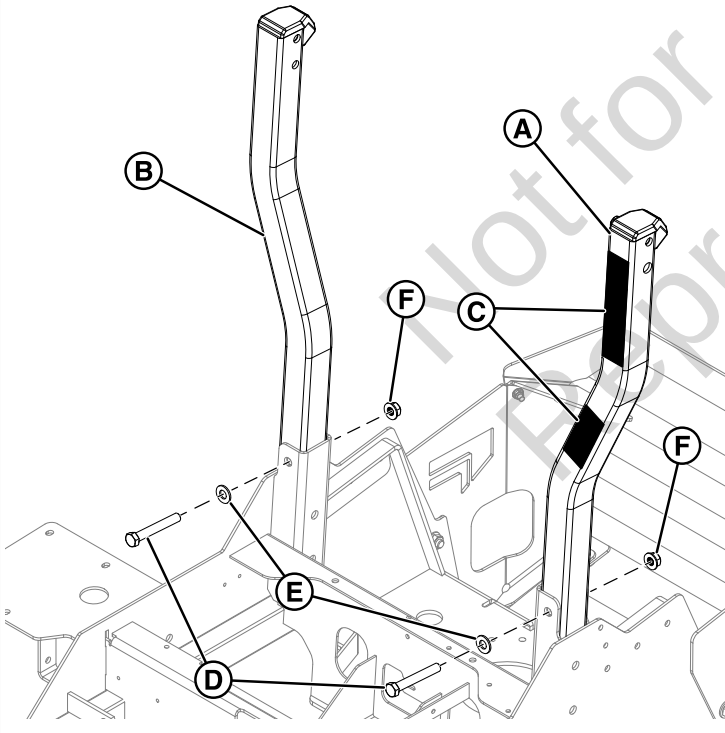
1. Make sure that no fuel lines, cables, parts of the wire harness, obstructions, or foreign objects are in the way of the roll bar pockets.
2. Check to make sure that the pivot blocks (A, Figure 6) are installed into the top of the roll bar posts (B). If not, install them. You might need to use a rubber mallet to pound them into place. The holes (C) in the pivot block will align with the pivot holes (D) in the roll bar post.

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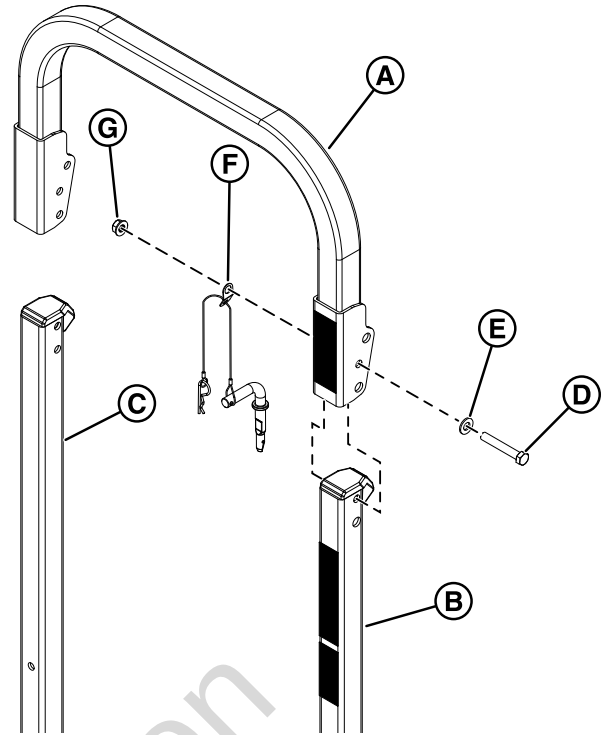
3. There is a left roll bar post (A, Figure 7) and right roll bar post (B). The left roll bar post has safety decals (C). Put the left hand roll bar post into the left roll bar pocket (as determined by the operator's position) so that the safety decals are facing towards the front of the unit. Use a 1/2" X 3-1/4" bolt (D), washer (E), and nut (F) to hold the roll bar post in place. Leave this hardware loose.

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4. Put the right hand roll bar post into the right roll bar pocket. Use a 1/2" X 3-1/4" bolt, washer, and nut to hold the roll bar post in place. Leave this hardware loose.
5. Assemble the top loop (A, Figure 8) to the left upright tube (B) and the right upright tube (C) by loosely installing the 1/2 bolts (D), 1/2 washers (E) through the 1/2" holes in the top loop assembly, the roll bar posts, the retainer pin assemblies (F), and then loosely install the 1/2 hex lock nuts (G).

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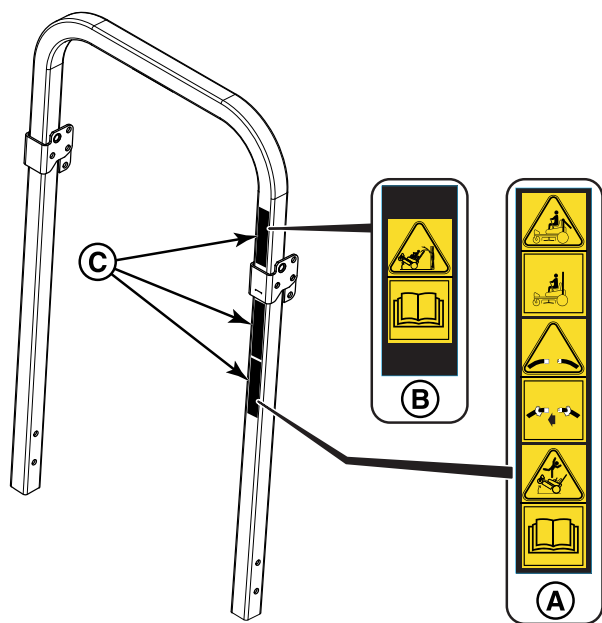


6. Tighten the 1/2" hardware (D, E, & F, Figure 7) that secures the roll bar posts to the frame of the unit to 82 ft-lbs (108 Nm) of torque.
7. Tighten the 1/2" hardware (D, E, & G, Figure 8) that secures the top loop to the roll bar posts to 30 ft-lbs (41 Nm). The top loop should pivot snugly. If it doesn't, loosen or tighten the hardware as needed.
8. Put the retainer pins into the roll bar with their handles pointing up and then rotate the pins 180 degrees so that their handles are pointing down. Install the hair pin clips into the retainer pins.

Install the Roll Bar Safety Decals (Export Models Only)

1. Remove the black and yellow CE safety decals (A, & B, Figure 9) from the publications packet.

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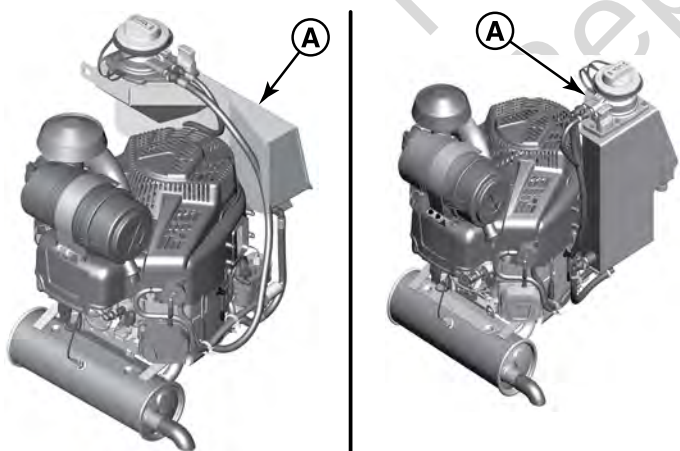


2. Remove the three (3) existing English language decals (C) from the roll bar.
3. Refer to Figure 9 for decal installation locations. The long decal, part number 5100536 (A) is installed below the roll bar pivot of the roll bar. The short decal, part number 5100537 (B), is installed above the roll bar pivot.

Check the Engine Oil Level (Engines with Remote Oil Tank)

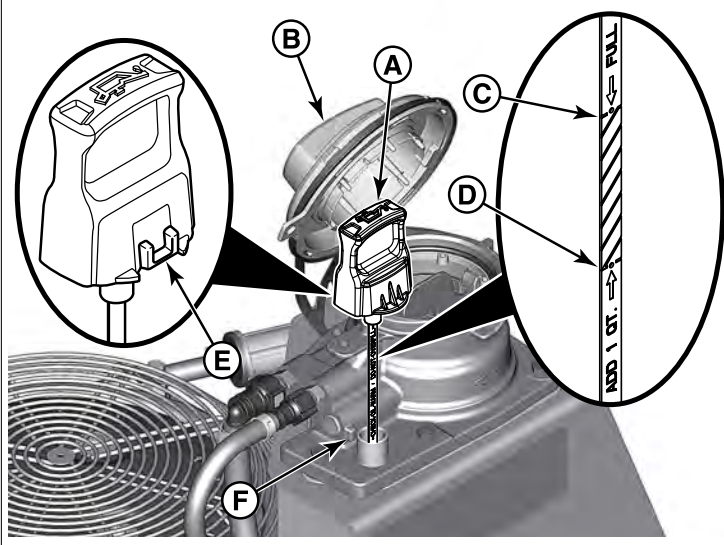
Some models in this series of mower feature a remote oil tank (A, Figure 10) that supplies oil to the engine.

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1. Clean the area around the engine oil dipstick (A, Figure 11) and oil fill cover (B) to remove any debris.

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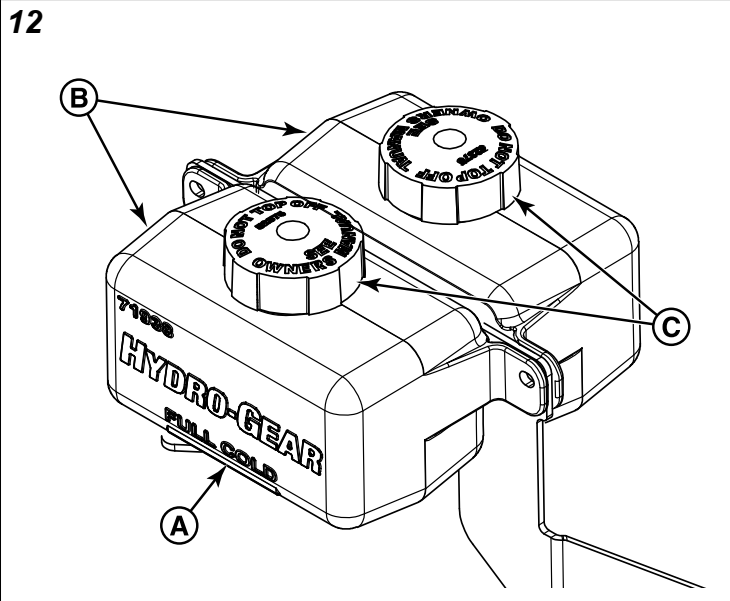
2. Use the dipstick to check the engine oil level. Maximum oil level is the "FULL" line (C) on the dipstick. If the oil level is at the "ADD 1 QT." line (D) or below, more oil must be added.
3. If necessary, open the oil fill cover and slowly add 15W-50 synthetic oil. (See the engine oil operator's manual for other oil recommendations.) The remote oil tank is designed to hold 5 qt (4,73 L) of engine oil.
4. Wipe the engine oil dipstick with a clean cloth and then install it into the tank by pressing down firmly with your hand. The engine oil dipstick has a detent (E) and it must snap into place on the lip (F) of the tank housing so that the dipstick is fully installed into the tank. This action requires moderate force.
5. Close the oil fill cover.
6. If desired, a new self-locking tie can be installed to keep the oil fill cover securely closed.

Check / Fill Transmission Oil Level

This unit is equipped with two transmission oil tanks. One transmission oil tank only supplies oil to one transmission. The level of oil in both transmission tanks must be checked, and if necessary, filled.

Oil Type: SAE 20W-50 motor oil

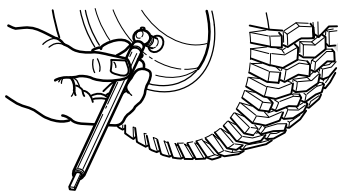
1. Locate the transmission oil tanks (B, Figure 12) by raising the seat plate of the unit.
2. Check the oil level when the unit is cold. The oil should be up to the "FULL COLD" mark (A) on the transmission oil tanks (B). If the oil is below this level, proceed to step #3.



3. Before removing the tank cap (C), make sure that the area around the tank cap and fill neck of the tank is free of dust, dirt, and other debris. Remove the tank caps.
4. Add oil up to the "FULL COLD" mark.
5. Re-install the tank cap.
6. After adding oil to the tanks, it may be necessary to purge air from the hydraulic system. If the unit is not driving properly perform the *Purging the Air from the Hydraulic System* procedure.

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 in the chart provide proper traction and extend tire life.



Tire	Pressure
Front	25 psi (1,72 bar)
Rear	15 psi (1,07 bar)

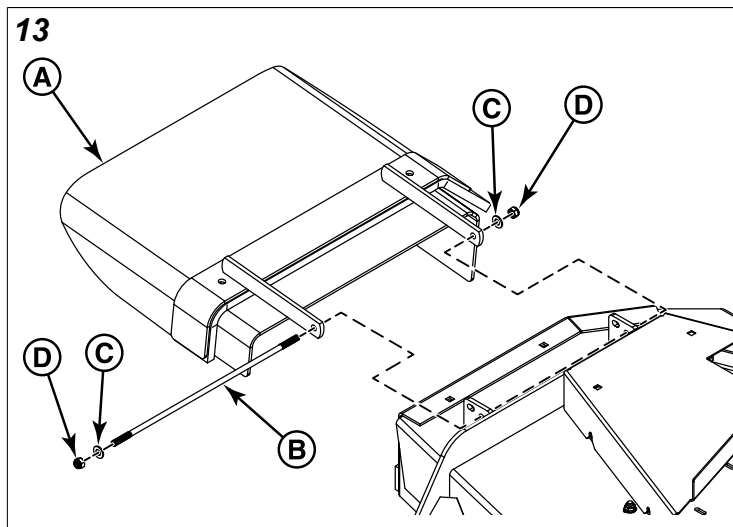
Note: Some models are equipped with flat free front tires. Flat free tires do not have a tire pressure.

Configuring the Mower Deck

This machine features a mower deck that can be configured to perform three functions: rear discharge, mulching, and side discharge. Prior to operating the machine it must be set up to operate in one of these configurations.

Configuring the Mower Deck for Rear Discharge from Factory Setup

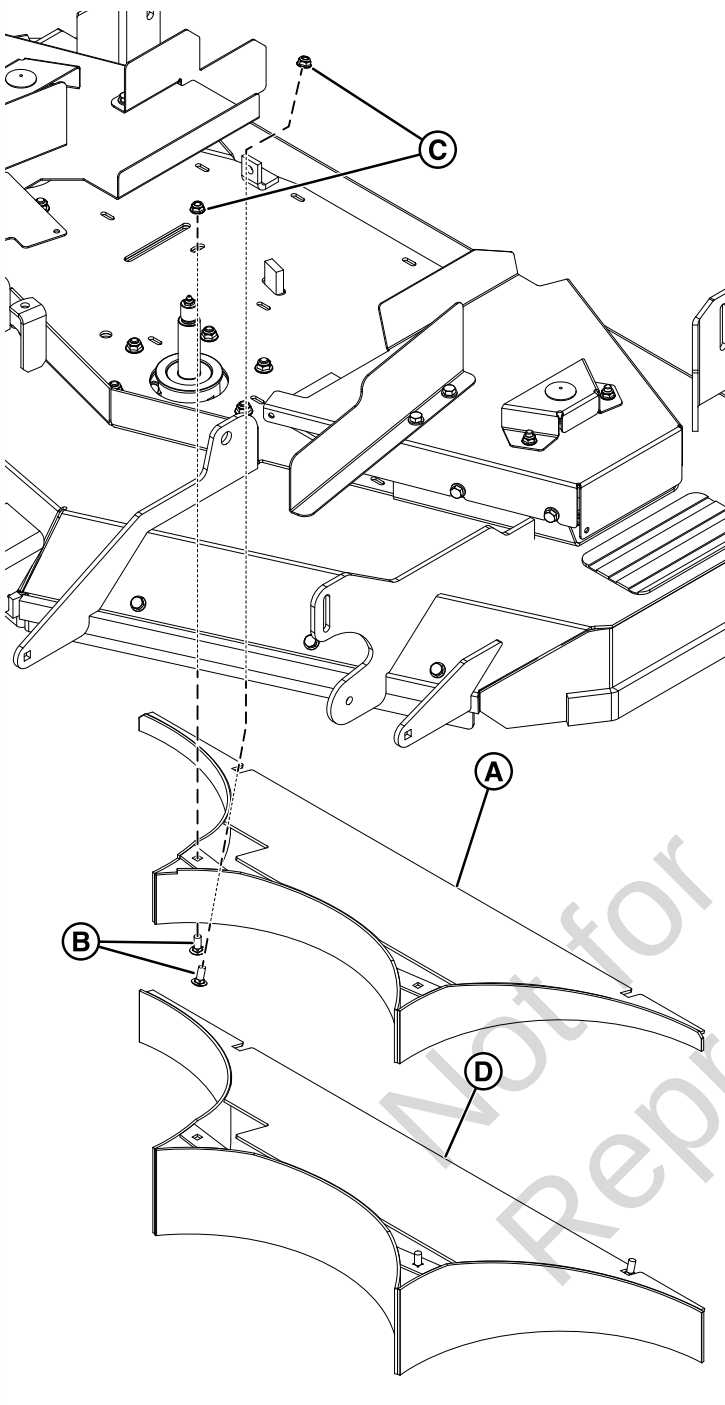
1. Remove the discharge chute (A, Figure 13), chute rod (B), the two (2) washers (C) and nuts (D) from the mower deck.



Configuring the Mower Deck for Mulching from Factory Setup

1. Remove the discharge chute (A, Figure 13), chute rod (B), the two (2) washers (C) and nuts (D) from the mower deck.
2. Remove the short rear baffle (A, Figure 14), the four (4) 5/16 carriage bolts (B) and nuts (C) from the mower deck.

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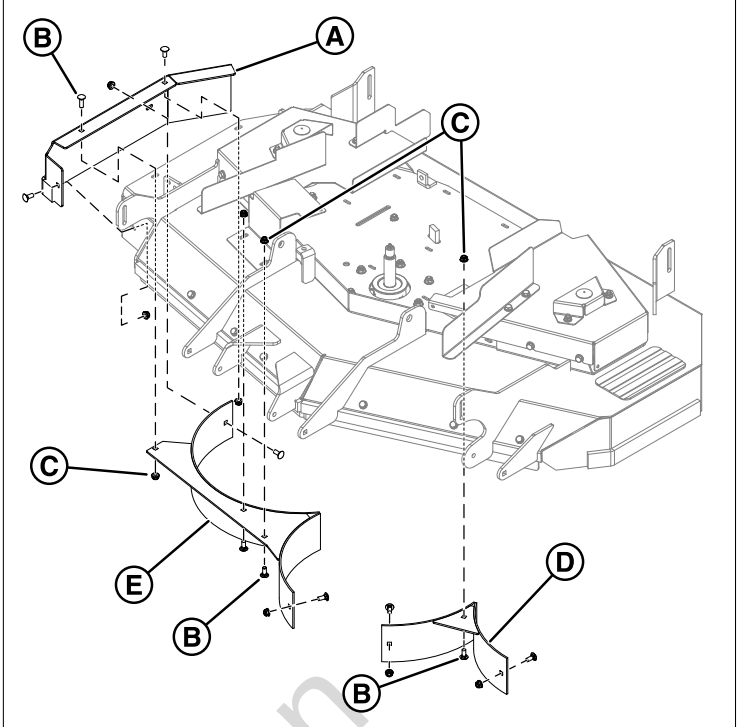


3. Install the tall rear baffle (D) to the mower deck using the four (4) 5/16 carriage bolts and nuts previously removed.

Configuring the Mower Deck for Side Discharge from Factory Setup

1. Remove the short rear baffle (A, Figure 14), the four (4) 5/16 carriage bolts (B) and nuts (C) from the mower deck.
2. Install the tall rear baffle (D) to the mower deck using the four (4) 5/16 carriage bolts and nuts previously removed.
3. Remove the block off plate (A, Figure 15), the four (4) 5/16 carriage bolts (B), and nuts (C) from the mower deck.

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4. Remove the left front baffle (D), the three (3) 5/16 carriage bolts, and nuts from the mower deck.
5. Remove the right front baffle (E), the four (4) 5/16 carriage bolts, and nuts from the mower deck.

Check the Mower Blade Bolt Torque

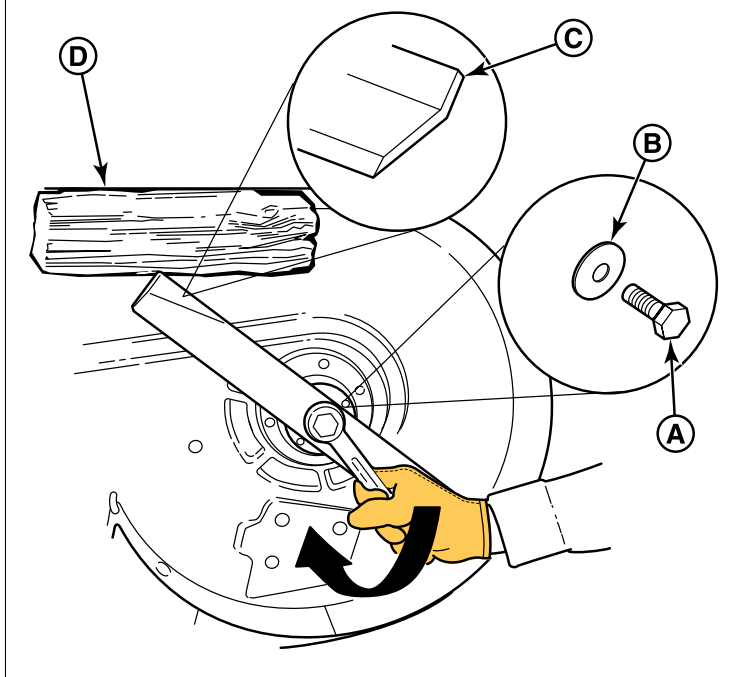


WARNING

Avoid injury! Mower blades are sharp.

- 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 and then securely tightened. Torque blade mounting bolts to 120 ft. lbs. (163 Nm).
1. Lock the mower deck in it's highest cutting position.
 2. Check that the blades are installed with the tabs pointing up (A, Figure 16) towards the deck as showing in Figure 16.

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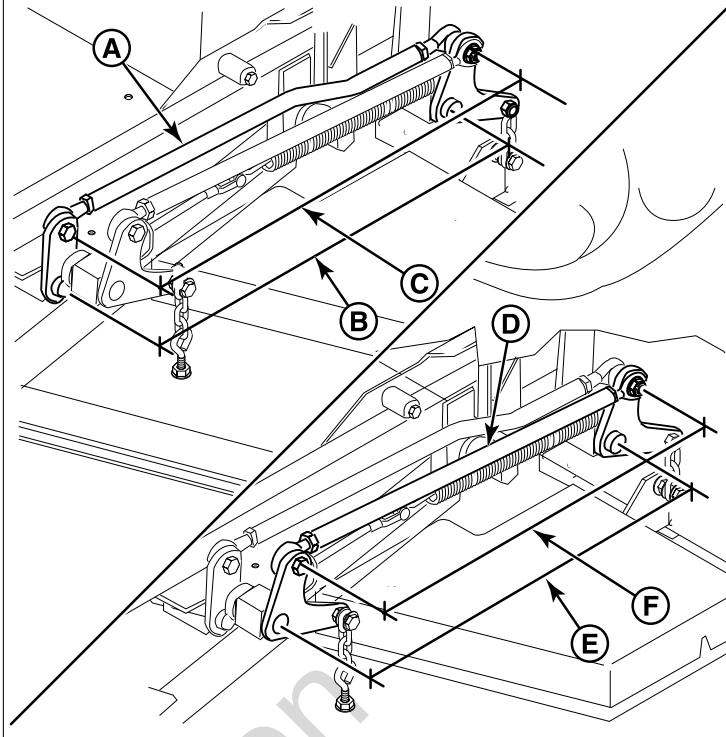
3. Check that a flat washer (B) is installed between each blade and the head of it's mounting bolt (C).
4. Wedge a wooden block (D) between the mower blade and the mower deck housing to keep the mower blade from turning. Torque each mower blade mounting bolt to 120 ft. lbs. (163 Nm).

Deck Lift Rod Timing Adjustment

Checking the Deck Lift Rod Timing

1. Park the unit on a flat, level surface. Disengage the PTO, stop the engine, and engage the parking brake. Verify the tires are inflated to the correct pressure.
2. To check the inner lift rod (A, Figure 17) timing, measure and record the distance between the inner lift pivots (B) and the inner rod pivots (C). Repeat for the other side of unit.

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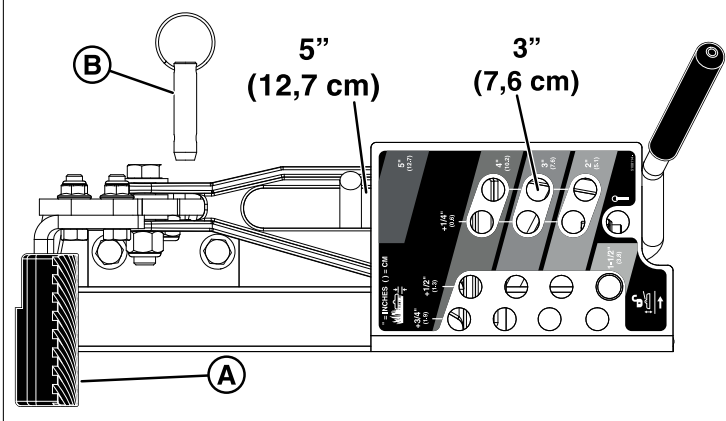


3. To check the outer lift rod (D) timing, measure and record the distance between the outer lift pivots (E) and the outer rod pivots (F). Repeat for other side of unit.
4. If the measurements for the inner rods are equal, and the measurements for the outer rods are equal, no further adjustment is required. If the measurements are NOT equal (greater than 1/8" (3,17 mm) difference), adjustment is required, continue with *Adjusting the Deck Lift Rod Timing*.

Adjusting the Deck Lift Rod Timing

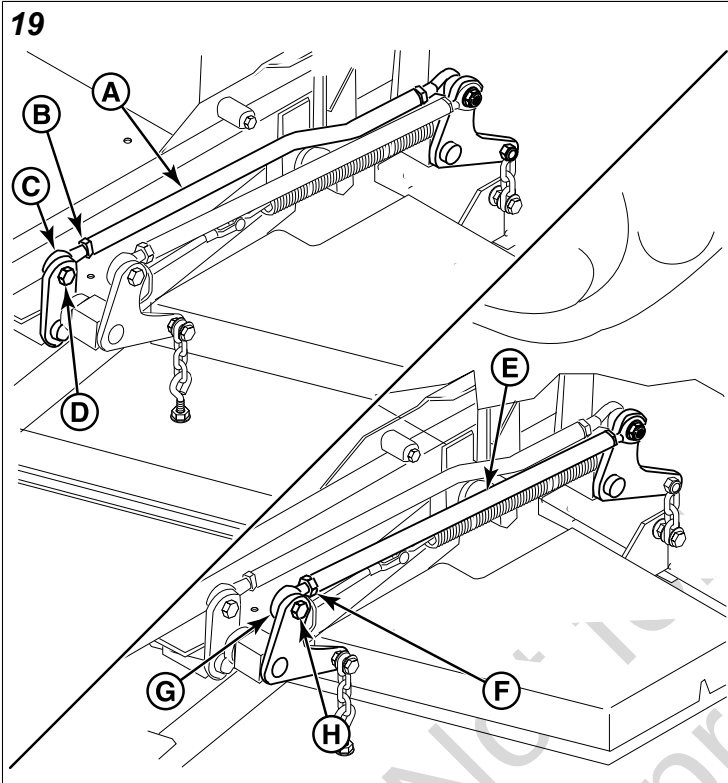
1. Lock the deck lift pedal in the 5" (12,7cm) position. Remove the height adjustment pin (A, Figure 18) and lower the mower deck.

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2. To ensure that the deck is in the lowest position, push the pedal by hand towards the rear of the unit and install the height adjustment pin in the 3" (7.6 cm) position to hold in place.

3. Block up the mower deck until all hanger chains are slack.
4. To adjust the inner lift rod (A, Figure 19): Loosen the jam nut (B) on the front ball joint (C) then remove the 1/2" hardware (D) fastening the ball joint to the lift pivot arm. Turn the ball joint **clockwise** to shorten the distance between the rod pivots or **counter-clockwise** to lengthen the distance between the rod pivots. Reinstall the ball joint on the lift pivot arm and secure with the 1/2" hardware previously removed. Tighten the jam nut against the lift rod.



5. To adjust the outer lift rod (E): Loosen the jam nut (F) on the front ball joint (G) then remove the 1/2" hardware (H) fastening the ball joint to the lift pivot arm. Turn the ball joint **clockwise** to shorten the distance between the rod pivots or **counter-clockwise** to lengthen the distance between the rod pivots. Reinstall the ball joint on the lift pivot arm and secure with the 1/2" hardware previously removed. Tighten the jam nut against the lift rod.
6. Remove blocks from under the mower deck.
7. Remove the cutting height adjustment pin from in front of the deck lift pedal arm. Lift mower deck and reinstall adjustment pin in desired mowing height.

Deck Leveling Adjustment

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

Determining if the Deck Leveling Needs to be Adjusted

1. Park the unit on a flat, level surface. Disengage the PTO, engage the parking brake, turn the ignition switch to OFF, and remove the ignition key.

2. Lock the deck lift pedal in the TRANSPORT position. Place the cutting height adjustment pin in the 4" position and lower the deck lift pedal until the deck lift arm contacts the cutting height adjustment pin.
3. Verify that the tires are inflated to the correct pressure.
4. Verify that the mower blades are flat, and not bent or broken. A bent or broken blade must be replaced.



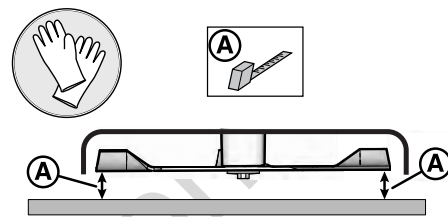
WARNING

Avoid Injury! Mower blades are sharp.

Always wear gloves when handling blades or working near blades.

5. See Figure 20. Position the outside mower blades so they face front-to-back.

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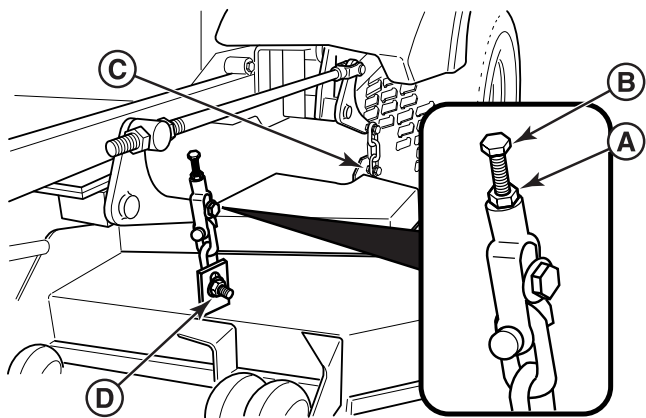
6. Measure the front tip (A, Figure 20) of the blade from the cutting edge to the ground.
7. Measure the rear tip (A) of the blade from the cutting edge to the ground.
8. Repeat the process on the other side of the machine.
 - the front measurements should equal 4" (10,2 cm).
 - the rear measurements should equal 4-1/4" (10,8 cm)

If the measurements do not equal the measurements as listed above, adjust the deck leveling.

Deck Leveling Adjustment

1. Place the deck height adjustment pin in the 4" (10,2 cm) position.
2. 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 the top of the rear blocks.
3. Loosen the nuts (D, Figure 21) and allow the front of the deck to rest on the 2 X 4's. Slide the chains in the slots until the chains are tight and tighten the nuts.

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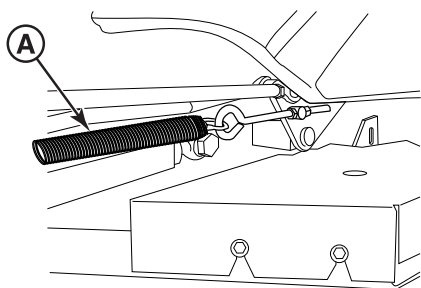


4. Loosen the nuts (C) and allow the rear of the deck to rest on the 2 X 4's and 1/4" spacers. Slide the chains in the slots until the chains are tight and tighten the nuts.
5. Repeat the process for the other side of the unit.
6. Remove all the blocks and spacers for under the mower deck.
7. Perform the *Determining if the Deck Leveling Needs to be Adjusted* procedure to verify that the deck has been leveled correctly.
 - If the mower deck does not measure 4" (10,2 cm) in the front and 4-1/4" (10,8 cm) in the rear, proceed with step #8.
8. Loosen the jam nut (A) and turn the fine adjustment bolt (B) to adjust the deck height.
 - Turn the bolt **clockwise** to raise the deck.
 - Turn the bolt **counter-clockwise** to lower the deck.
9. Once the desired measurements are achieved, re-tighten the jam nut.
10. Repeat the process for the other side of the unit.

Deck Lift Assist Springs

Some models are equipped with deck lift assist springs (A, Figure 22) that assist the operator in raising the mower deck with the deck lift pedal. The deck lift assist springs are factory set to provide optimal lifting performance.

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Although it is fastened with a multi-position anchor, this is **not** an adjustment point.

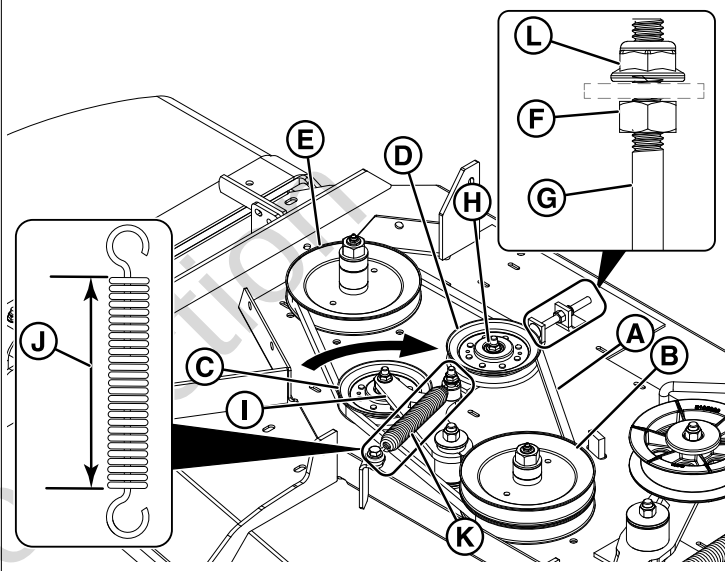
Do NOT attempt to adjust the spring length or lifting performance will be compromised.

Check the Short Right Hand Deck Belt

NOTICE To avoid damaging belt, **do not pry over pulleys.**

1. Lower the mower deck to it's lowest cutting position.
2. Remove the mower deck guards and floor pan to gain access to the mower deck belts.
3. Make sure that the V-side of the short right hand belt (A, Figure 23) is in the pulley grooves of the center spindle pulley (B), the front idler pulley (C), the rear idler pulley (D) and the right hand spindle pulley (E).

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4. If the short right hand belt is not properly seated, loosen the jam nut (F) on the carriage bolt (G) and the 3/8" nut (H) that secure the rear idler pulley (D) to the deck. This will allow the rear idler pulley to move in it's adjustment slot.



WARNING

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

5. Carefully rotate the idler arm (I) **clockwise**, which will relieve the tension on the belt exerted from the idler arm.
6. Re-seat the short right hand belt and carefully release the tension on the idler arm.
7. Set the mower deck to the 3-1/2" (8,9 cm) cutting position.
8. Measure the coil-to-coil length (J) of the idler arm spring (K). The measurement should equal 6-1/8" (15,6 cm) ± 1/8 (0,32 cm). If not, turn the adjustment nut (L) until the measurement is achieved.

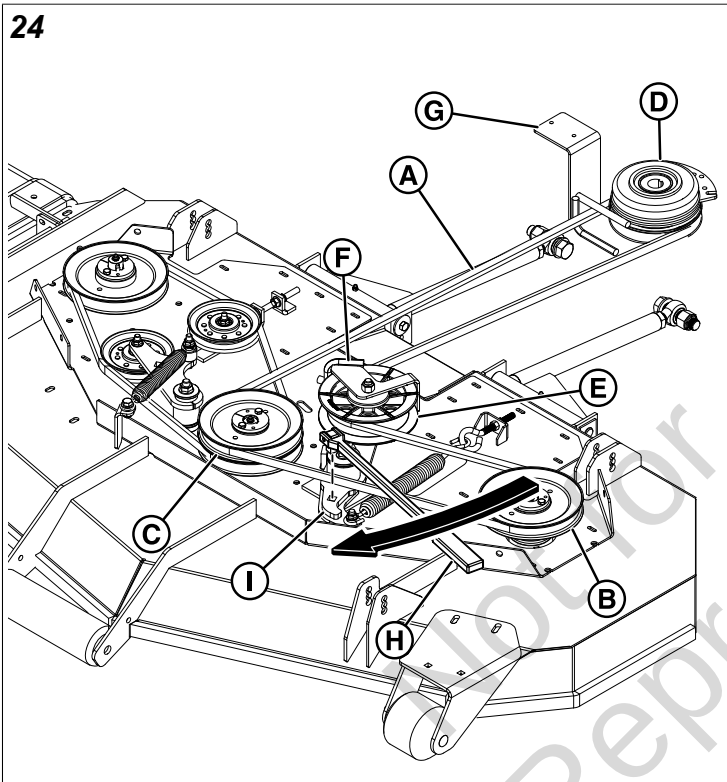
9. Tighten the jam nut and the 3/8" nut that secures the rear back side idler pulley to the deck.

Check the Long Left Hand Deck Belt

NOTICE

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

1. Check the routing of the long left hand belt (A, Figure 24). Make sure that the V-side of the belt is in the pulley grooves of the left hand spindle pulley (B), center spindle pulley (C), and the PTO clutch pulley (D). Make sure that the back side of the belt contacts the face of the adjustable idler pulley (E). Make sure that the belt is correctly routed in the belt guides (F & G).



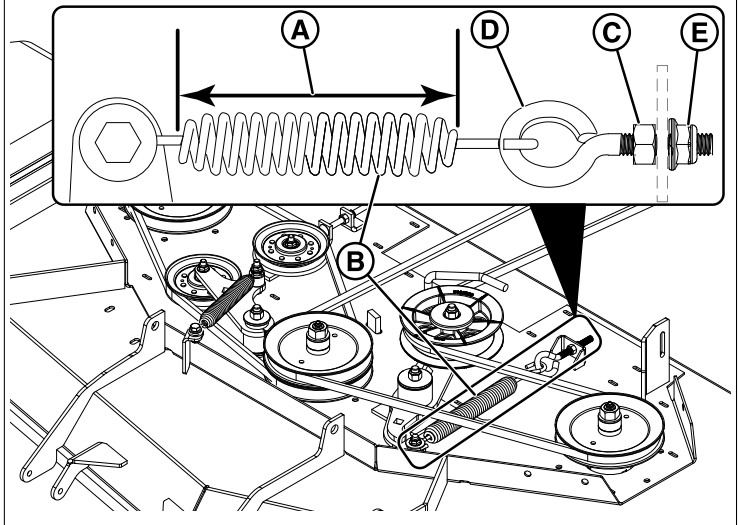
WARNING

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.

2. If the long left hand belt is not properly seated, use a 1/2" breaker bar (H) and place the square end in the opening in the spindle drive idler arm (I) and rotate the idler arm **clockwise**, which will relieve the tension on the belt exerted from the idler arm.
3. Re-seat the long left hand belt and carefully release the tension on the idler arm.
4. Set the mower deck to the 3-1/2" (8,9 cm) cutting position.
5. Measure the coil-to-coil length (A, Figure 25) of the long left hand belt tensioning spring (B). The measurement

should equal 10-1/4" (26 cm) $\pm$ 1/8 (0,32 cm). If not, loosen the jam nut (C) on the eye bolt (D) and then turn the adjustment nut (E) until the measurement is achieved. Tighten the jam nut.

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6. Re-install the mower deck guards and the floor pan.

Lubrication

Lubricate the unit at the location shown in the following figures as well as the lubrication points listed below.

Grease:



- front caster wheel axles & yokes
- deck lift pivot blocks
- mower deck spindles
- transmission cradle pivot points

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

Not all greases are compatible. Your product is manufactured using Heavy Duty Lithium Complex EP, NLGI grade 2 grease (p/n 5109902X1). It is recommended that you service your product with similar grease. 5109902X1 is available through your normal part source. Using non-compatible grease could damage or cause premature parts failures.

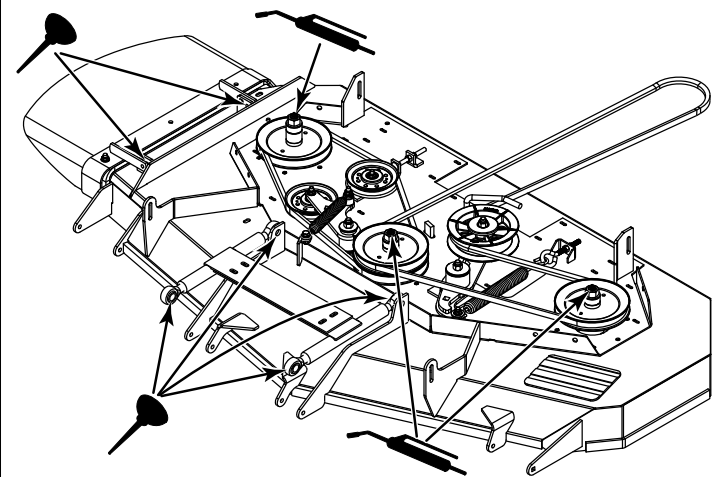
Oil:



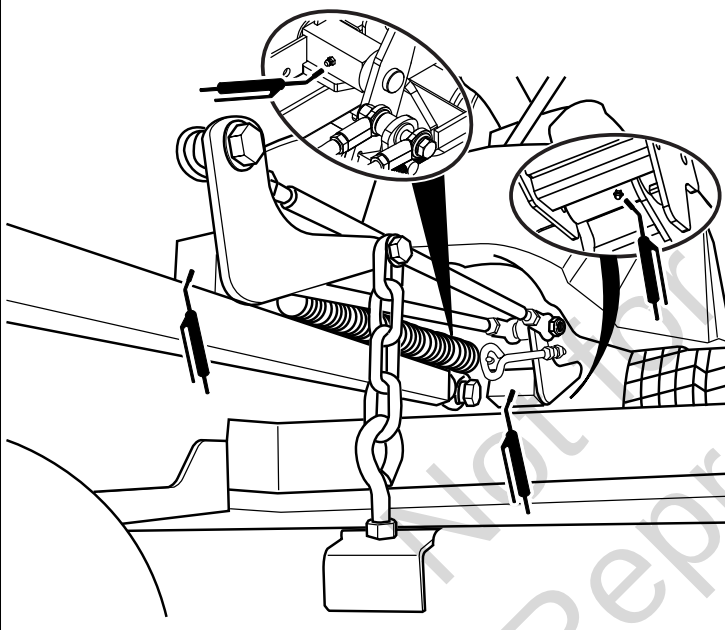
- control handle pivots
- seat plate pivots
- deck lift pivots
- discharge chute hinge

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.

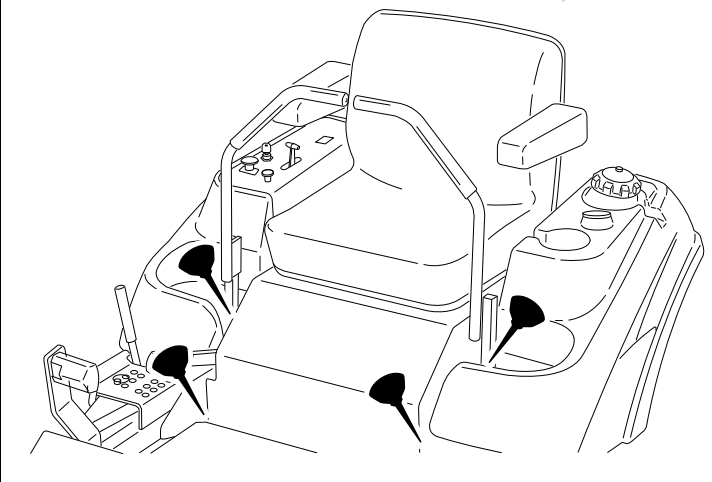
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27



28

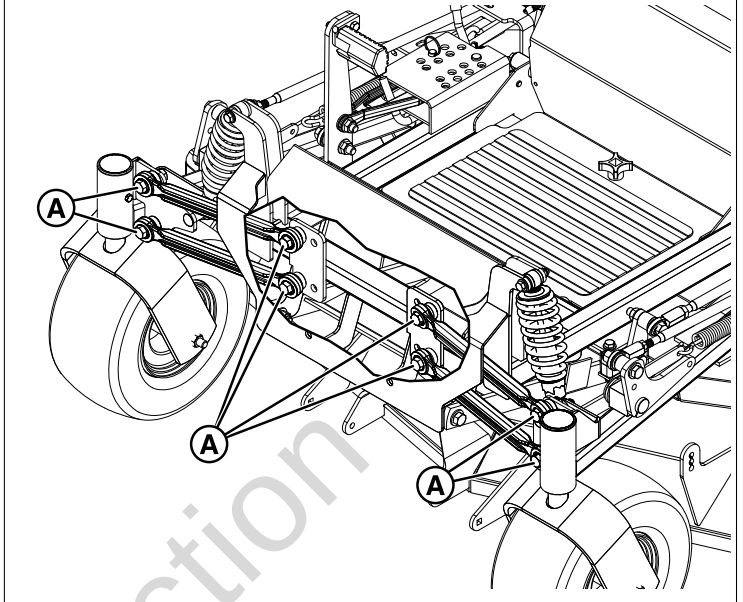


Lubricating the ForeFront Suspension Control Arms

Interval: Every 50 hours.

Lubricate the ends of the four (4) ForeFront™ suspension control arms with a petroleum based chain lube at the areas identified as "A" in Figure 29.

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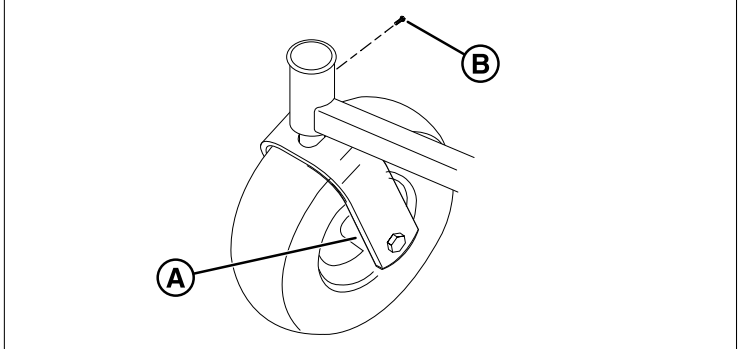
Lubricating the Front Casters

Interval: Front caster wheel axles (A, Figure 30) - Every 25 hours.

Interval: Front caster yoke axles - Yearly.

1. Remove the 1/4-28 bolt (B, Figure 30) screwed into the caster and install a 1/4-28 grease fitting.

30



2. Grease the front caster.
3. Remove the 1/4-28 grease fitting and reinstall the 1/4-28 bolt.
4. Repeat the process for the other side of the unit.

Checking / Adding Fuel



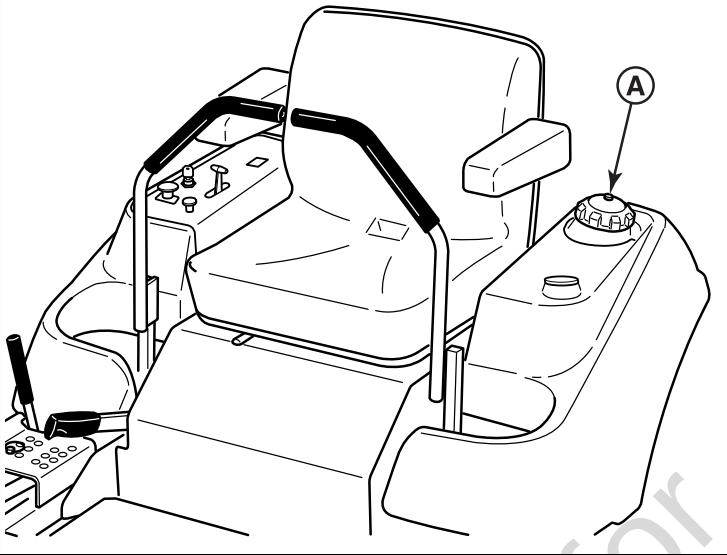
WARNING

Gasoline is highly flammable and must be handled with care. Allow engine to cool for at least 3 minutes before refueling. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

To add fuel:

1. Remove the fuel cap (A, Figure 31).

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2. Fill the fuel tank to the bottom of the filler neck. This will allow for fuel expansion.
Note: Do not overfill. Refer to your engine owner's manual for specific fuel recommendations.
3. Install and hand tighten the fuel cap.
4. If your unit is equipped with two fuel tanks, repeat this process to fill the other fuel tank.

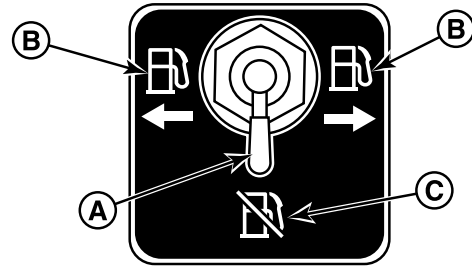
NOTICE

Refer to your engine owner's manual for specific fuel recommendations.

Fuel Selector Valve

Units equipped with two fuel tanks feature a fuel selector valve (A, Figure 32) that features three positions. Two positions allow fuel to be drawn from either the left-hand tank or the right-hand tank (B) and the third position shuts off the fuel flow completely (C). Turning the handle to the desired position determines which tank will be supplying fuel. With the handle pointing LEFT, it will draw fuel from the left-hand tank. With the handle pointing RIGHT, it will draw fuel from the right-hand fuel tank. Prior to starting the engine, make sure that the fuel selector valve is in a position that will allow fuel to be drawn from a fuel tank.

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Starting the Engine - Briggs & Stratton Fuel Injected Models



WARNING

- If you do not understand how a specific control functions, or have not yet thoroughly read the FEATURES AND CONTROLS section of the operator's manual, do so now.
- Do NOT attempt to operate the unit without first becoming familiar with the location and function of all controls.

Note: To prime a dry fuel system: Turn the key switch to the RUN position for one minute. Allow the fuel pump to cycle and prime the system and then turn the key switch to the OFF position.

1. While sitting in the operator's seat, pivot the ground speed control levers out to lock them into the neutral position, engage the parking brake, and press the PTO switch down to disengage the PTO.
2. Position the throttle control midway between the SLOW position and the FAST position.
3. Insert the ignition key into the ignition switch and turn it to the START position. Release the switch as soon as the engine starts. If starter does not turn the engine over, shut the ignition switch off immediately, and consult engine operator's manual.
Warm up the engine by running it for one minute before engaging the PTO switch or driving the unit.
4. After warming the engine always operate the unit at the FAST position when mowing.

In the event of an emergency the engine can be stopped by simply turning the ignition switch to OFF.

Perform the Safety Checks



WARNING

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

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

Functional Tests

1. Check the unit for loose bolts, screws, nuts, etc.
2. Start the engine and check all the 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: oil, fuel, and hydraulic oil.
4. If any control fails to operate properly during testing or seems to be out of adjustment, check and re-adjust it according to the following **Adjustment Procedures** 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.

Test 2 - Engine SHOULD crank if:

- PTO switch is not engaged, AND
- Parking brake is engaged.

Test 3 - Engine should SHUT OFF if:

- Operator rises off seat with PTO engaged, OR
- Operator rises off seat with parking brake disengaged.

Test 4 - Blade Brake Check

The 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 the unit fails the blade brake check, it is advised not to use the unit until it is repaired and passes the blade brake check.

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

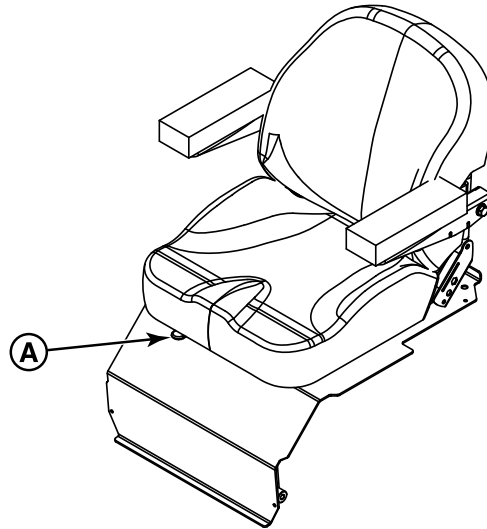
Adjustment Procedures

If any control fails to operate properly during testing or seems to be out of adjustment, check and re-adjust it according to the following instructions.

Seat Adjustment

The seat can be adjusted forward and back. Move the lever (A, Figure 33) towards the left, position the seat as desired, and then release the lever to lock the seat into position.

33



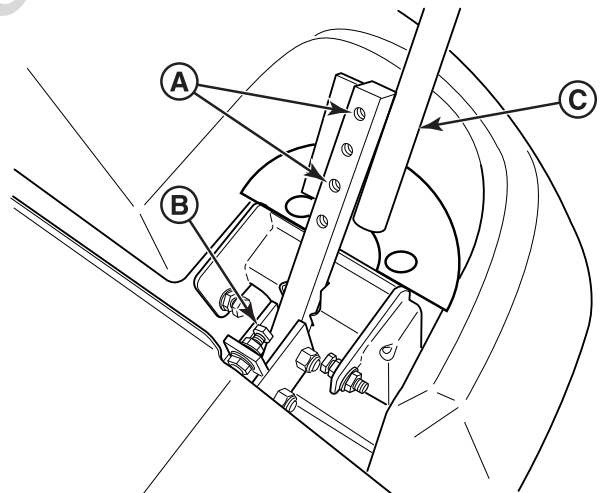
Ground Speed Control Lever Adjustment

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.

To Adjust the Handle Alignment

Loosen the mount bolts (A, Figure 34) and pivot the lever(s) (C) to align with each other.

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To Adjust the Handle Placement

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

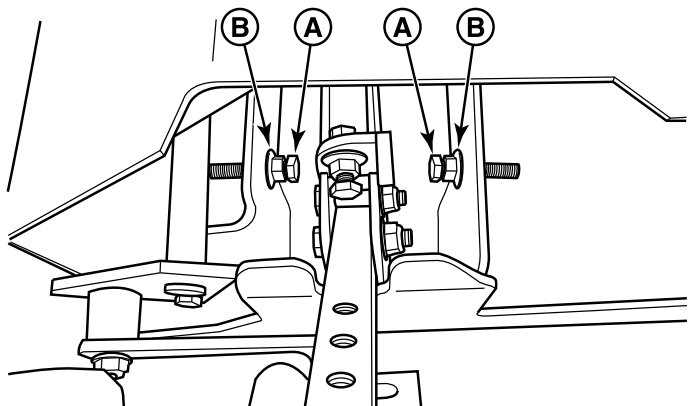
To Adjust the Handle Height

Remove the mounting hardware and reposition the handle either up or down from its original position. You will need to adjust the handle alignment again as described above.

Speed Balancing Adjustment

If the unit drifts to the right or left when the ground speed control levers are in the maximum forward position, the top speed of each of these control levers can be balanced by turning the adjustment bolt(s) (A, Figure 35). Only adjust the speed of the wheel that is traveling faster.

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To Reduce the Speed of the Faster Wheel

1. Loosen the securing nut (B).
2. Turn the top speed adjustment bolt **counter-clockwise** to reduce the speed.
3. Tighten the securing nut when adjustment is complete.



WARNING

Unsafe Operation Hazard.

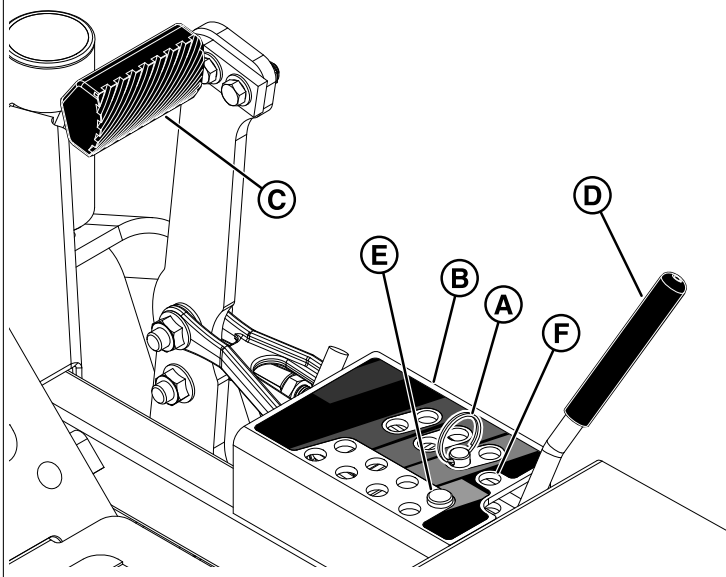
DO NOT adjust the unit for a faster overall speed forward or reverse than it was designed for.

Cutting Height Adjustment

The cutting height adjustment pin (A, Figure 36) controls the mower's cutting height. The cutting height is adjustable between 1-1/2" (3,8 cm) and 5" (12,7 cm) in 1/4" (0,6 cm) increments.

Note: Make sure that the pin is inserted into the holes in both upper and lower plates of the pin box (B).

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To set the cutting height at 1-1/2" (3,8 cm):

1. While sitting in the operator's seat, press the deck lift foot pedal (C) forward until it locks into the 5" (12,7 cm) position.
2. Remove the cutting height adjustment pin from the hole that it is installed in.
3. Press the deck lift foot pedal forward and then push the lock lever (D) towards the right to release the lock.
4. Slowly release the deck lift foot pedal until it comes to rest against the stationary pin (E) in the 1-1/2" (3,8 cm) cutting height hole.
5. Place the cutting height adjustment pin in the storage hole (F).

To set the cutting height in the range of 1-3/4" (4,4 cm) and 4-3/4" (12 cm):

1. While sitting in the operator's seat, press the deck lift foot pedal forward until it locks into the 5" (12,7 cm) position.
2. Place the cutting height adjustment pin in the desired cutting height hole.
3. Press the deck lift pedal forward and then push the lock lever towards the right to release the lock.
4. Slowly release the deck lift foot pedal until it comes to rest against the cutting height adjustment pin.

To set the cutting height at 5" (12,7 cm):

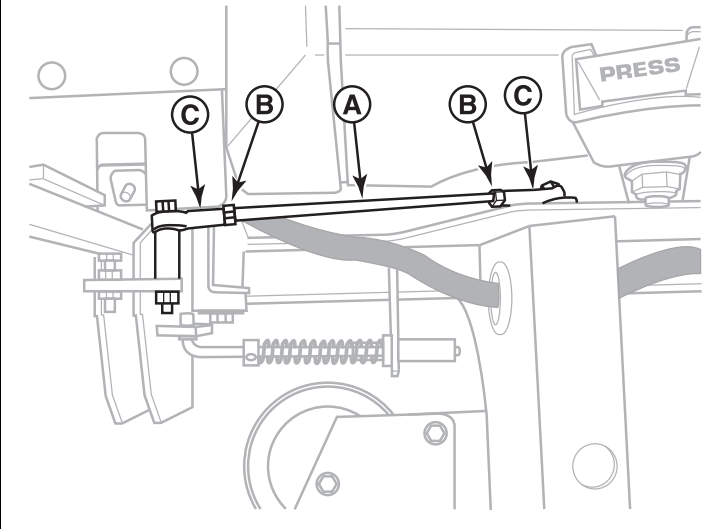
1. While sitting in the operator's seat, press the deck lift foot pedal forward until it locks into the 5" (12,7 cm) position.
2. Place the cutting height adjustment pin in any open cutting height hole. The lift lock lever holds the mower deck at 5" (12,7 cm) while cutting.

Neutral Adjustment

The neutral system for this unit consists of two neutral linkage rods and a pivot that connects the ground speed control

lever to the transmission. The lower rod that connects the transmission to the pivot is factory preset and should not be changed for neutral adjustment purposes. The adjustment is achieved by changing the length of the upper rod (A, Figure 37) that connects the ground speed control lever to the pivot.

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Determining if Adjustment is Necessary: If the unit "creeps" while the ground speed control levers are locked in the NEUTRAL LOCKOUT position, then it may be necessary to adjust the linkage rods.

Note: Perform this adjustment on a hard, level surface such as a concrete floor.

1. Disengage the PTO, engage the parking brake, and turn off the engine.
2. There are two nuts (B) on the linkage rod. Loosen the nuts from the ball joints (C) and turn the linkage rod to adjust.
 - If the unit creeps forward, turn the rod **clockwise** (while standing at the rear of the unit, facing forward);
 - If the unit creeps backward, turn the rod **counter-clockwise** (while standing at the rear of the unit, facing forward).
3. Lock the jam nut against the ball joints when neutral is achieved.

Note: This adjustment should not be performed while the unit is running. It may take several attempts to achieve neutral, depending on how much the unit creeps.

Return-to-Neutral Adjustment

Prior to performing this procedure the *Neutral Adjustment* procedure must be completed.

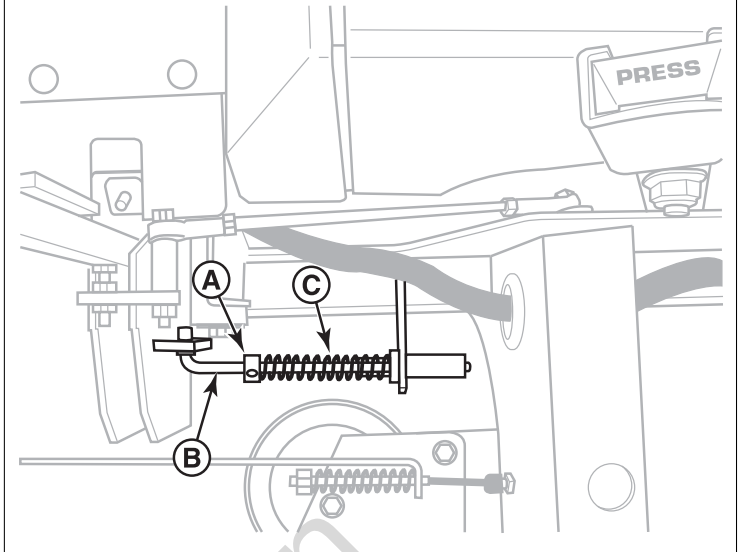


WARNING

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

1. Position the ground speed control levers into the NEUTRAL LOCKOUT position
2. Loosen the set collar (A, Figure 38) on the neutral return rod (B).

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3. Position the set collar along the neutral return rod until it contacts and very lightly compresses the neutral return spring (C).
4. Move the ground speed control levers into the operating position, pull rearward, and release.
5. Move the ground speed control levers out towards the NEUTRAL LOCKOUT position.
 - if the ground speed control lever aligns with the notch in the neutral lock plate, adjustment is complete;
 - if the ground speed control lever stops its return motion past the notch (while standing at the rear of the unit), position the set collar so the neutral return spring is less compressed.
 - if the ground speed control lever stops its return motion before the notch (while standing at the rear of the unit), position the set collar so that the neutral return spring is more compressed.
6. Repeat the process as necessary until the ground speed control lever aligns with the notch in the neutral lock plate.

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

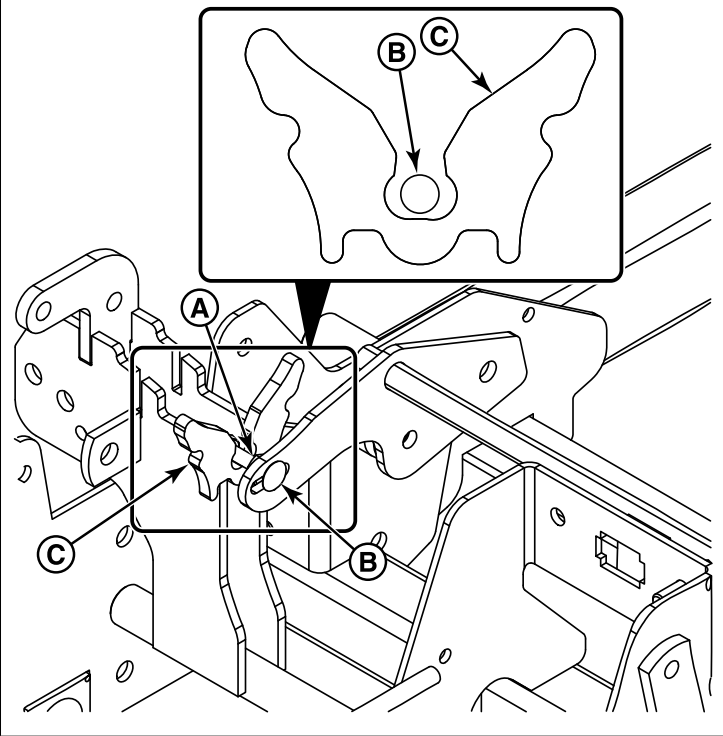
Neutral Lockout Adjustment

Prior to adjusting the neutral lockout, the neutral and return-to-neutral must be properly adjusted.

1. Park the unit on a flat, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, turn the ignition switch to OFF, and remove the ignition key.
2. Chock the wheels of the unit to prevent movement.
3. Raise the seat to gain access to the neutral lockout components.

- Loosen the jam nuts (A, Figure 39) on the neutral lockout bolts (B).

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- Engage the parking brake. The neutral lockout bolts will enter the notches of the neutral lockout plates (C).
- Position the neutral lockout bolts to the center of the notches of the neutral lockout plates.
- Re-tighten the jam nuts.

Purging the Air from the Hydraulic System

Due to the effects air has on efficiency in hydraulic drive systems, it is critical that it be purged from the system.

These purge procedures should be implemented any time a hydraulic system has been opened to facilitate maintenance or any additional oil has been added to the system.

The resulting symptoms of air in the hydraulic system may be:

- Noisy operation.
- Lack of power or drive after short term operation.
- High operation temperature and excessive expansion of oil.

Before starting, make sure the transaxles/transmissions are at the proper oil levels. If it is not, fill to the specifications outlined in the *Check/Fill Transmission Oil Level* procedure.

Purging Air from the Hydraulic System:

- Chock the front wheels to prevent the unit from rolling. Raise the rear of the unit so that the rear tires do not contact the ground. Position jack stands under the rear bumper of the unit to secure it.
- Open the transaxle bypass valves (see *Uncrating* for the location and function of the bypass valves), start the

engine, release the parking brake, and slowly move the ground speed control levers in both forward and reverse directions (5 to 6 times), as air is purged from the unit, the oil level will drop.

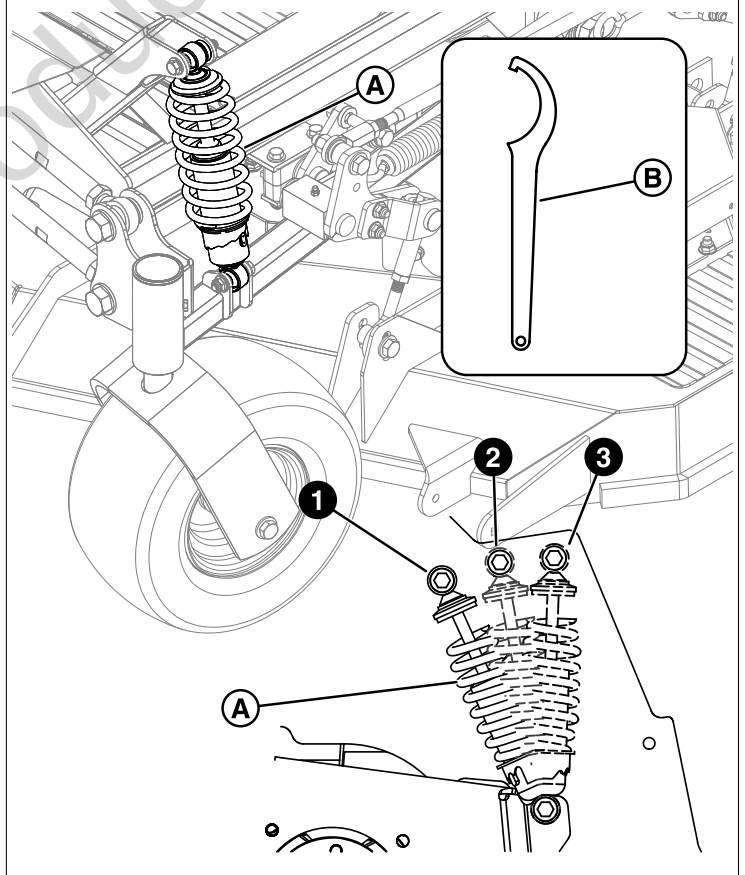
- Stop the engine and engage the parking brake.
- Close the transaxle bypass valves, start the engine, release the parking brake, and slowly move the ground speed control levers in both forward and reverse directions (5 to 6 times), as air is purged from the unit, the oil level will drop.
- Stop the engine. Remove the jack stands from underneath the unit.
- Repeat the process detailed above but with the unit's drive wheels on the ground. The procedure should be performed in an area free of any objects or bystanders.

It may be necessary to repeat the process detailed above until all the air is completely purged from the system. When the transaxles/transmissions operate at normal noise levels and move smoothly forward and reverse at normal speeds, then the transaxles/transmissions are considered purged.

Suspension Adjustment

The shock assemblies (A, Figure 40) can be adjusted to allow the operator to customize the ride according to the operator's weight and/or operating conditions.

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The front shock assemblies can be adjusted by changing the spring's pre-load.

The rear shock assemblies can be adjusted by changing the spring's pre-load and/or upper mounting position.

A spanner wrench (B) was included with the literature packet that came with this unit. The spanner wrench is used to adjust the spring's pre-load.

Items to consider before adjusting the suspension:

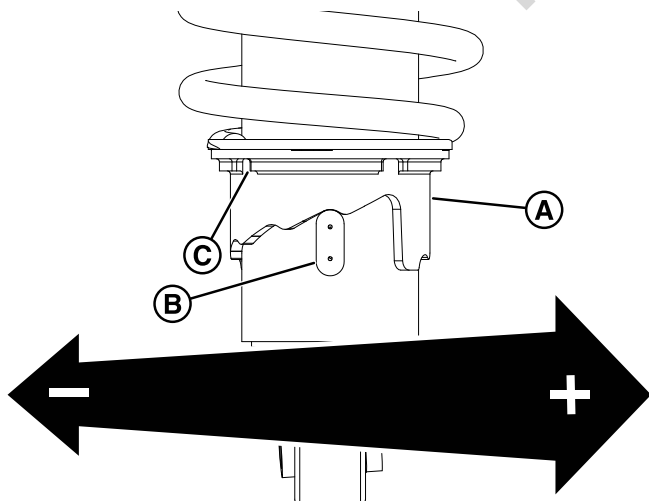
- Less spring pre-load should be used with light weight operators, which will provide a softer, more cushioned ride.
- More spring pre-load should be used with heavy weight operator's, which will provide a stiffer, more rigid ride.
- There are three positions in which the upper shock mount can be positioned to. If adjusting the spring's pre-load does not achieve the ride requirement, the shock should be moved to the next higher numbered upper shock mounting position to achieve the desired ride requirement.
- Before adjusting the upper shock mount to a higher numbered position you should attempt to achieve the ride height through the spring's pre-load adjustment.
- Shock mounting position #3 should always be used when a rear-mounted grass collection system is installed on the unit.

To Adjust the Spring Pre-load:

This procedure details the process for adjusting the spring's pre-load for the rear shocks. **To adjust the spring's pre-load for the front shocks only steps #1 and #5 are required.**

The shock's pre-load adjustment consists of rotating the pre-load adjuster (A, Figure 41) with a spanner wrench so that the adjuster rides either up or down on the shock's fixed point (B) into one of the adjuster's five notch positions. As the adjuster moves up towards the spring, the spring is more compressed which creates more spring load. As the adjuster moves down away from the spring, the spring is less compressed creating less spring pre-load.

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1. Park the unit on a flat, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, and turn the ignition switch to OFF to stop the engine.
2. Chock the front wheels to prevent the unit from rolling.
3. Raise the rear of the unit and secure with jack stands.
4. Remove the rear drive tires.



WARNING

Spring loaded components can kick back causing injury. Use two hands when adjusting the shock springs with the spanner wrench. This will prevent the wrench from slipping while pressure is being applied.

5. Using the supplied spanner wrench (B, Figure 40), insert the tip of the wrench into the adjustment notch (C, Figure 41) in the pre-load adjuster (A). While holding the wrench in place with one hand:
 - Turn the pre-load adjuster so that it moves up towards the spring, compressing it, to increase the springs's pre-load;
 - Turn the pre-load adjuster so that it moves down away from the spring, decompressing it, to decrease the spring's pre-load.

Note: If necessary, a replacement spanner wrench can be ordered through your authorized Ferris servicing dealer.

6. Re-install the rear drive tires. Torque the lug bolts to 85-95 ft.lbs. (115-129 Nm). Remove the jack stands from under the unit.

Note: If a collection system is installed on the unit it is recommended that the rear suspension be adjusted stiffer due to the added weight of the collection system.

To Adjust the Upper Mounting Position (Rear Shocks):

1. Park the unit on a flat, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, and turn the ignition switch to OFF to stop the engine.
2. Chock the front wheels to prevent the unit from rolling. Raise the rear of the unit and secure with jack stands. The jack stands must be under the bumper of the unit.
3. Position the jack underneath the rear cross member of the transmission cradle and slowly raise the rear suspension to relieve the pressure on the upper shock mounting bolts.

Note: This will require small adjustments to the jack's position. The shock should move freely on the mounting bolt when the pressure is relieved.

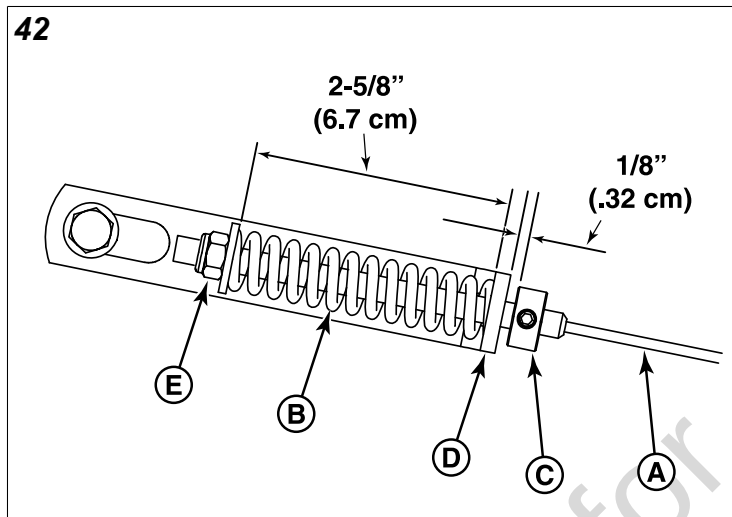
4. Remove the upper shock mounting hardware and pivot the shock to the next higher numbered position (see Figure 40). Adjust the jack to align the shock mounts to shocks.
5. Remove the jack from under the transmission cradle.

6. Remove the jack stands from underneath the unit.

If this does not correct the braking problem, see your authorized Ferris servicing dealer.

Parking Brake Adjustment

The parking brake mechanism consists of two parking brake cables (A, Figure 42) that connect the parking brake cable shaft to the parking brake control arms on the transmissions. There is a parking brake spring (B) on each park brake cable located underneath the seat plate and connected to the parking brake shaft. The position of the of the parking brake cables in the transmission cradle and the frame of the unit is factory preset and should not be changed for parking brake adjustment procedures. The adjustment is achieved by changing the compressed spring length of the parking brake springs.



1. Disengage the PTO, engage the parking brake, stop the engine, and chock the tires.
2. Locate the parking brake springs located underneath the seat plate of the unit.
3. With the parking brake engaged measure the compressed spring lengths. Both springs should measure 2-5/8" (6.7 cm) when compressed.
4. If the length of the springs does not equal 2-5/8" (6.7 cm), the length of the springs will need to be adjusted.
5. Disengage the parking brake.
6. Loosen the set collars (C) and slide them away from the backs of the parking brake spring brackets (D).



CAUTION

Do not adjust the springs to be shorter than 2-3/8" (6.03 cm) when compressed. This may damage the spring mechanism.

7. Turn the adjustment nuts (E) to compress or release the spring.
8. Engage the parking brake and re-measure the springs. Continue this process until the compressed length of the each spring measures 2-5/8" (6.7 cm).
9. Position the set collars 1/8" (.32 cm) away from the parking brake spring brackets and tighten.