# Dealer Setup & Adjustment Instructions

Ferris / Simplicity IS2000Z Diesel - 48” & 52” Mower Deck
20HP Yanmar Diesel Zero-Turn Riding Mower

This Dealer Setup Instruction covers the following products:

| Model No. | Description |
|---|---|
| 5900627 | FERRIS - IS2000ZY20D48 |
| 5900628 | FERRIS - IS2000ZY20D52R |
| 5901191 | FERRIS - IS2000ZY20D52 |
| 5901192 | FERRIS - IS2000ZY20D48R |
| 5901187 | SIMPLICITY - IS2000ZY20D48 |
| 5901188 | SIMPLICITY - IS2000ZY20D48RD |
| 5901189 | SIMPLICITY - IS2000ZY20D52 |
| 5901190 | SIMPLICITY - IS2000ZY20D52RD |

## 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.**


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.**


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

# Uncrating

1. Using a reciprocating utility saw or equivalent, cut crate away from bottom skid. Remove crate. Remove shrink-wrap plastic.
2. Cut nylon banding from front of the frame and rear bumper.

**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 release valve, which is located on front of the 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.).

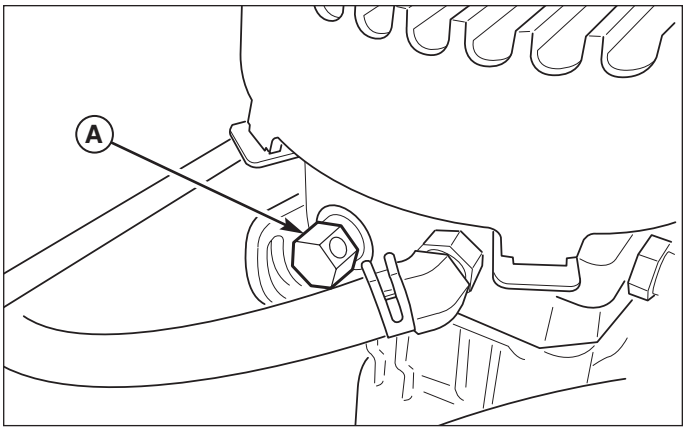


**Figure 1. Hydraulic System By-Pass**
**A. Hydraulic Release Valve (left-hand pump shown)**

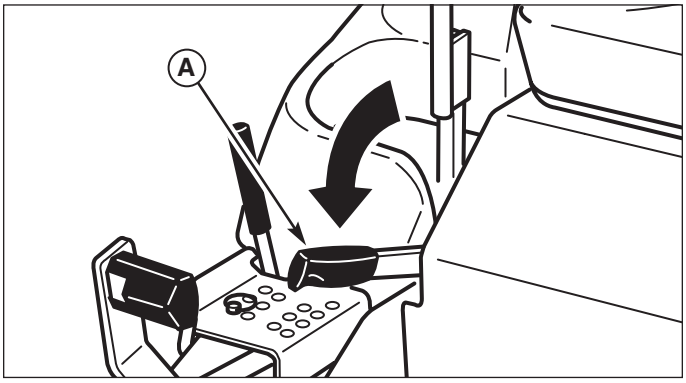


**Figure 2. Disengaging the Parking Brake (lever shown in disengaged position)**
**A. Parking Brake Lever**

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.**

## Connect Battery

1. Remove the floor pan mounting hardware (C, Figure 3) and remove the floor pan (D) to expose the battery.
2. Connect the red positive battery cable (A) to the positive battery post.
3. Connect the black negative battery cable (B) to the negative battery post.
4. Reposition the floor pan and secure in place with the hardware previously removed.

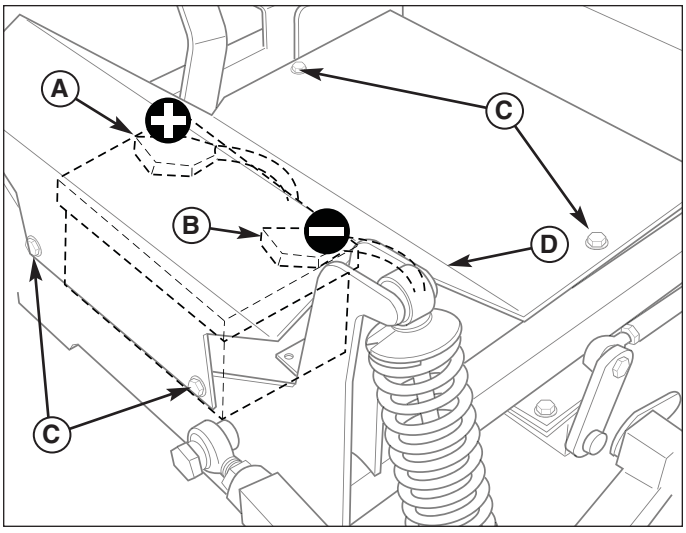


**Figure 3. Battery Compartment**
**A. Positive (+) Cable & Terminal**
**B. Negative (-) Cable & Terminal**
**C. Floor pan Mounting Hardware**
**D. Floor pan**

# Setup Tractor Assembly

## Motion Control Handle Assembly

1. Remove the handles and mounting hardware from the handle bar box.

*NOTE: There is a LEFT-HAND and a RIGHT-HAND control handle. When assembled to the base, the handle base should be pointing towards the rear as shown in Figure 4.*

2. Install the ground speed control handles (A, Figure 4) onto the control lever base using the 5/16-18 x 3/4” bolts, 5/16” lock washers and 5/16” flat washers (B, C, & D). Prior to tightening the bolts, align the handles with each other.

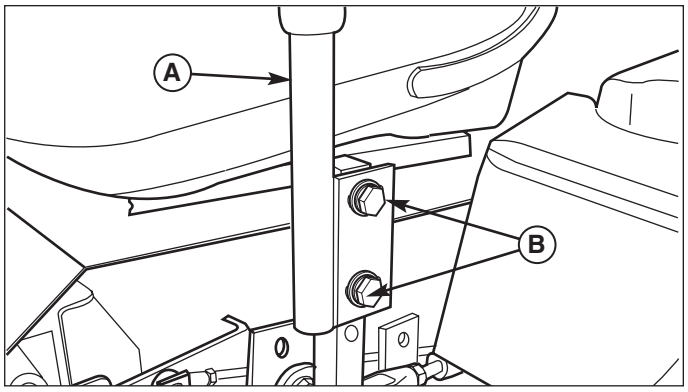


**Figure 4. Control Handle Installation**
**A. Control Handle**
**B. 5/16-18 x 3/4” Bolt(s), 5/16” Lock Washer(s) & 5/16” Flat Washer(s)**

## Seat Assembly

1. Unpack the seat.
2. Install the seat onto the seat mount plate and secure with the 5/16-18 nylock flange nuts (A, Figure 5).

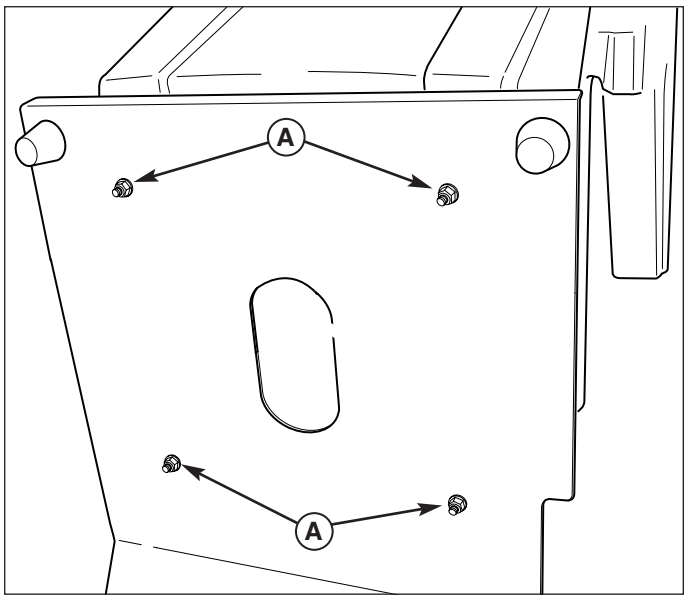


**Figure 5. Install Seat & Connect Harness**
**A. 5/16-18 Nylock Flange Nuts**

Setup

# Roll Bar Assembly

## Assemble Retainer Pins

1. Unpack the roll bar and hardware from the box.
2. Assemble the foam ring (A, Figure 6) onto the retainer pin (B).
3. Loop the snap end of the lanyard (C) through the retainer pin handle and snap together.
4. Install the lanyard anchor (D) onto the lanyard.
5. Install the clevis pin (E) onto the loop end of the lanyard as shown in Figure 6.

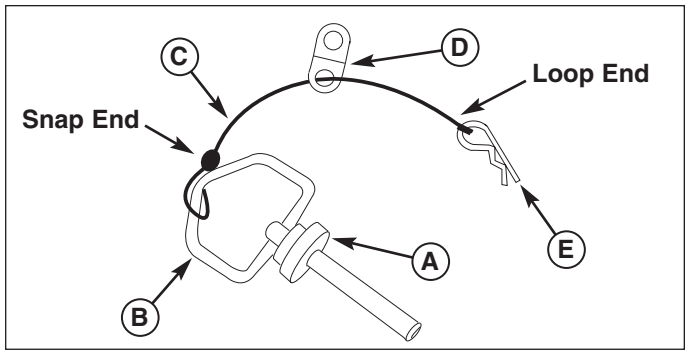


**Figure 6. Assemble the Retainer Pins**
**A. Foam Ring**
**B. Retainer Pin**
**C. Lanyard**
**D. Lanyard Anchor**
**E. Clevis Pin**

## Assemble the Top Loop

1. Install the plastic cap (B, Figure 7) into the end of the top loop tube (A). Repeat for other end of tube.
2. Make sure the rubber stop (C) is properly seated against the inside of the pivot mount. See Figure 8.

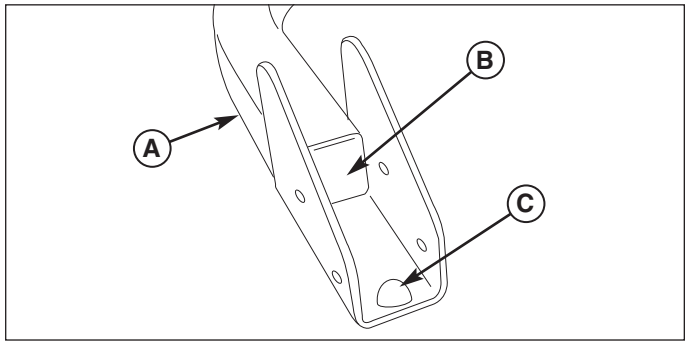


**Figure 7. Assemble the Top Loop**
**A. Top Loop Tube**
**B. Plastic Cap**
**C. Rubber Stop**

## Install the Roll Bar

1. See Figure 8. Remove and save the (2) 1/2-13 X 3-1/2” bolt (D, Figure 8), 1/2” SAE washer, and 1/2-13 hex nylock flange nut that secures the bumper to the frame of the machine on one side of the machine. Discard the 1/2-13 hex jam nuts that are tightened on the threads of the 1/2-13 X 3-1/” bolts.
2. Install the upright tube (A) (refer to Figure 9 for correct oreintation) on the outside of the bumper (B) as shown in Figure 8 and loosely reinstall the 1/2” hardware previously removed.
3. Repeat steps 1 and 2 for the other side of the machine.

***IMPORTANT: Make sure the upright tubes are angled towards the front of the unit. See Figure 9.***

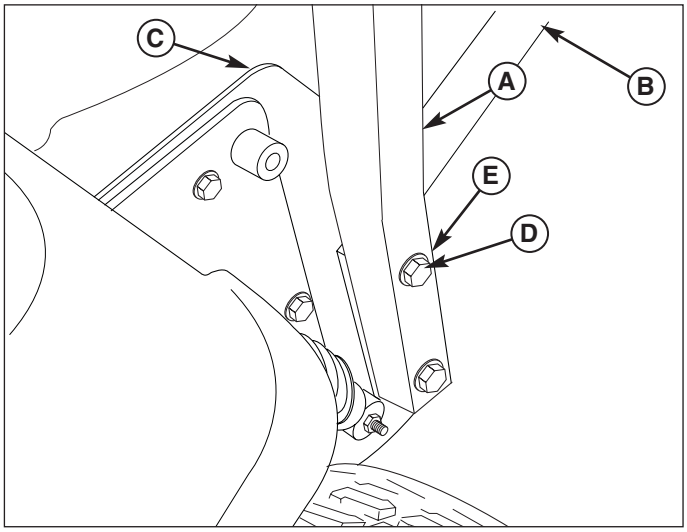


**Figure 8. Install the Upright Tubes**
**A. Upright Tube**
**B. Bumper**
**C. Frame**
**D. 1/2” x 3-1/2” Bolt GD.5**
**E. 1/2” Flat Washer**
**F. 1/2” Nylock Flange Nut (not shown)**

4. Install the top loop (A, Figure 10) onto the upright tubes (B). From the outside, install the 1/2” x 3” bolt (C) through the retainer pin assembly (D), then through the top lop and upright tube and shown in FIgure 10. Loosely install the 1/2” side lock nut (E). Repeat for other side.
5. Tighten the hardware securing the upright tubes to the frame and bumper (see Figure 8). Torque the hardware to 75 ft. lbs. (102 Nm).
6. Tighten the 1/2” x 3” bolts and hex side lock nuts (C & E) securing the top loop (A) to the upright tubes (B). Do not over-tighten. The top loop should pivot snugly with the retainer pins removed.
7. Raise the top loop (A) until the rubber stops (F) contact the upright tubes.
8. Push or pull the top of the roll bar forward against the rubber stops and install the retainer pins and hair pin clips to secure the roll bar in the raised position.

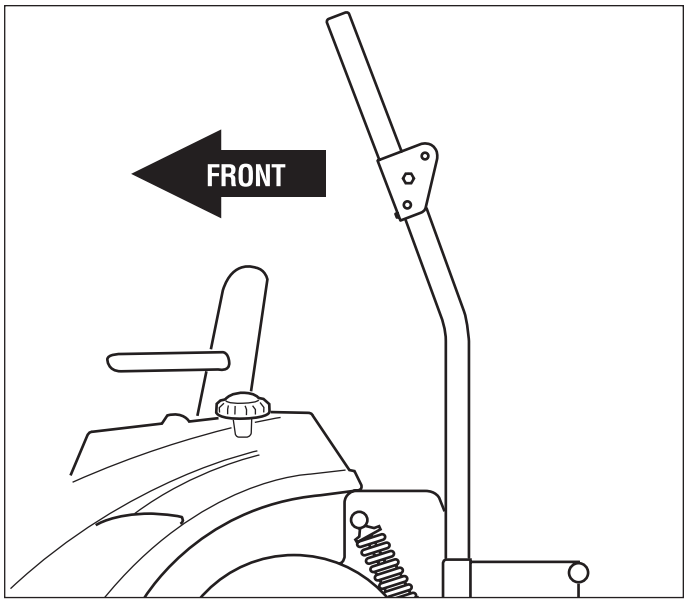


**Figure 9. Upright Tube Orientation**

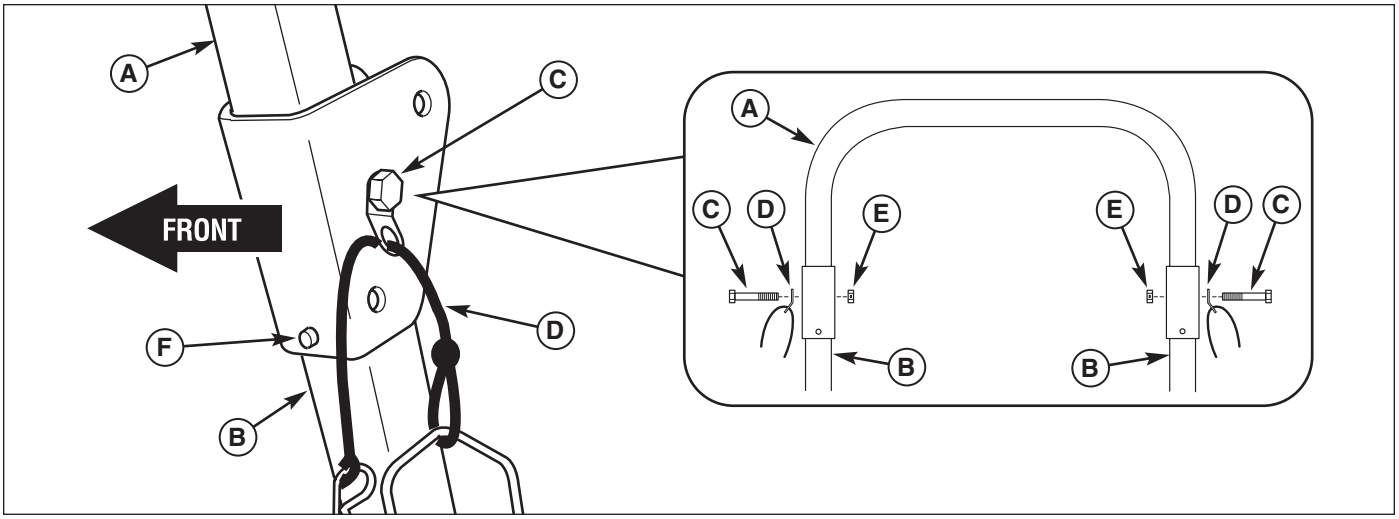


**Figure 10. Install Top Loop**
**A. Top Loop**
**B. Upright Tube**
**C. 1/2” x 3” Bolt GD.5**
**D. Retainer Pin Assembly**
**E. 1/2” Side Lock Nut**
**F. Rubber Stop**

## Install The Safety Decals

1. Remove the black and yellow CE safety decals(A & B, Figure 11) from the publication packet.
2. Install safety decal part no. 5100536 (A) over existing decal located below pivot point of the roll bar (C) of RH upright tube. Install safety decal part no. 5100537 (B) over existing decal located above the pivot point of the roll bar (C) of RH upright tube. Repeat procedure for LH upright tube.

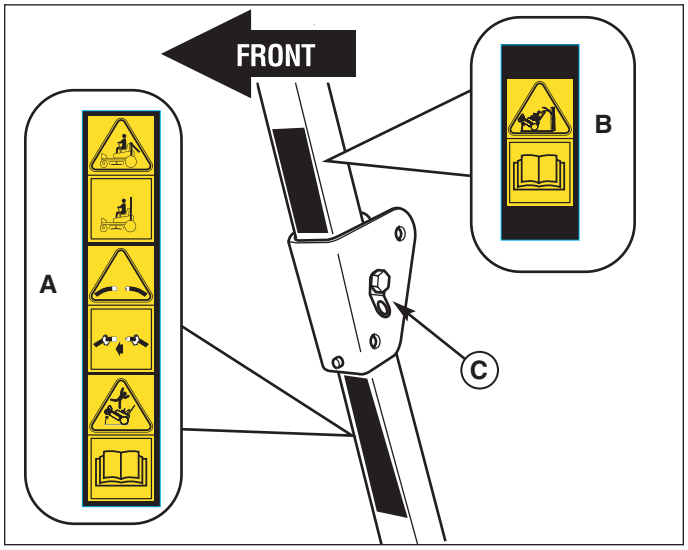


**Figure 11. Install CE Safety Decals (LH Side Shown)**
**A. Part No. 5100536**
**B. Part No. 5100537**
**C. Pivot Point of the Roll Bar**

Setup

# Check Fluid Levels

## Check Engine Oil Level

1. Park machine on a flat, level surface.
2. Tip the seat forward and loosen the thumb bolts (A, Figure 13) that secure the engine access panel (B). Remove the engine access panel.
3. Remove dipstick (A, Figure 14) and wipe with clean cloth.
4. Fully reinsert dipstick. The oil level should be between the upper and the lower lines on the dipstick. If necessary add engine oil. See Figure 12 for specific oil recommendations.

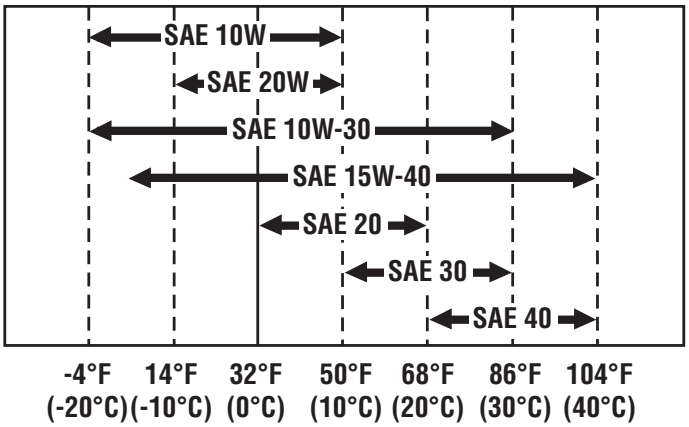


**Figure 12. SAE Service Grade Viscosity Chart.**

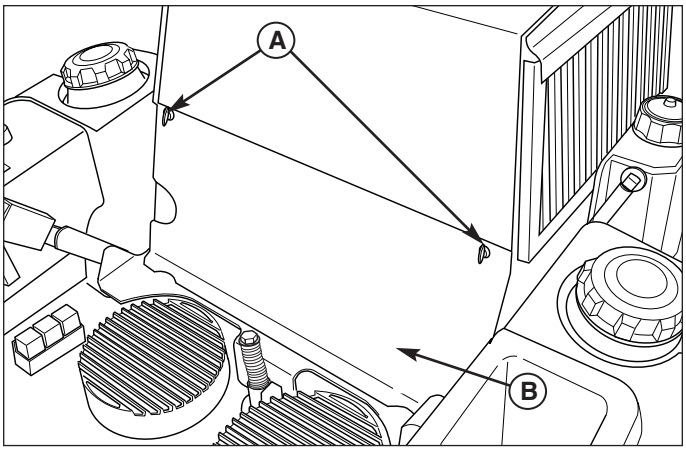


**Figure 13. Remove Engine Access Panel**
**A. Thumb Bolt**
**B. Engine Access Panel**

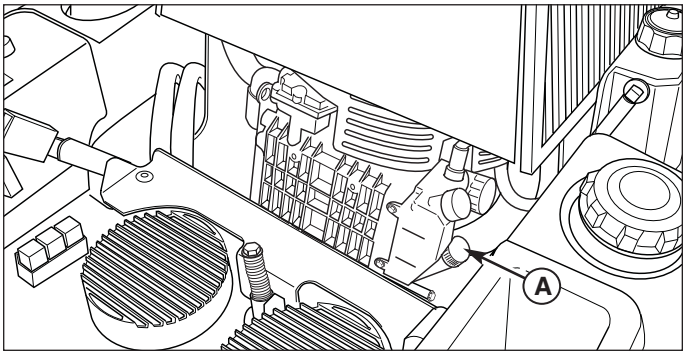


**Figure 14. Oil Dipstick and Filter**
**A. Dipstick and Filler Tube**

## Check Engine Coolant Level

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

The cooling system is a closed type. Never open the radiator cap unless you are flushing the system. Opening the radiator cap may induce air into the cooling system and may cause overheating.

1. Check the coolant level only at the overflow reservoir (A, Figure 15). The coolant level should be at the LOW (COLD) mark.
2. If the coolant level is insufficient, remove the cap (B) from the reservoir and add coolant to the “H” mark.
3. Reinstall the cap.
4. Reinstall the engine access cover and tighten the thumb screws (see figure 13).

*NOTE: Proper coolant mix is a 50/50 mixture of ethylene glycol and distilled water. See engine owners manual for engine coolant specifications.*

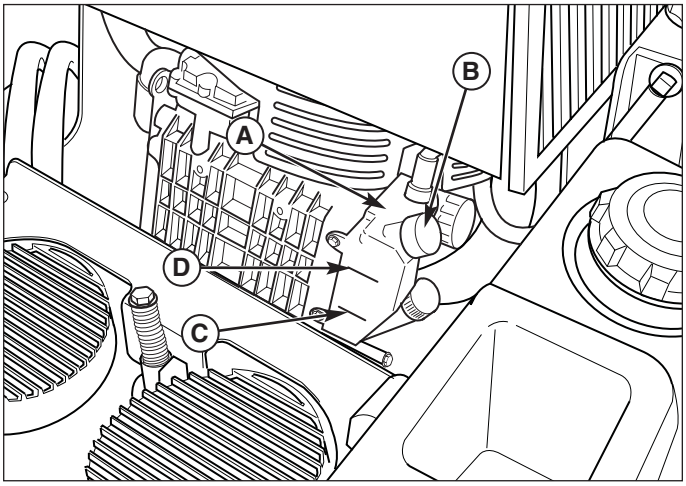


**Figure 15. Checking The Engine Coolant Level**
**A. Overflow Reservoir**
**B. Cap**
**C. Low (Cold) Mark**
**D. Full (Hot) Mark**

## Check Hydraulic Oil Level

1. Before removing the reservoir cap, make sure the area around the reservoir cap and fill neck of the reservoir is free of dust, dirt, or other debris.
2. Unscrew the reservoir cap (B, Figure 16).
3. Look down the filler neck of the hydraulic oil reservoir (A, Figure 16) and observe the oil level. When cold, the oil level should be approximately 4” (10 cm) below top of the filler neck.
4. If necessary, add either Mobil 1™, 15W-50 synthetic oil or Castrol Syntec™ 5W-50 oil. DO NOT use conventional oils.
5. Reinstall the reservoir cap.

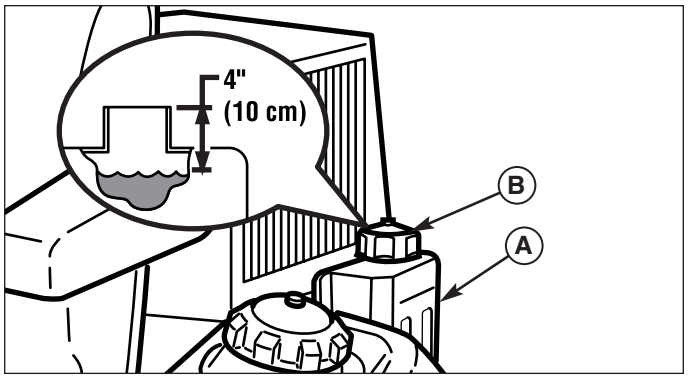


**Figure 16. Checking Hydraulic Oil Level**
**A. Hydraulic Oil Reservoir**
**B. Reservoir Cap**

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 (1,72 bar) |
| Rear | 15 psi (1,03 bar) |

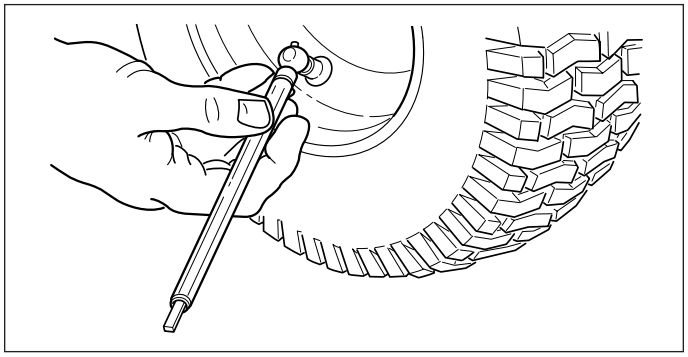

**Figure 17. Checking Tire Pressure**

Setup

# Check Mower Assembly

## 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. Park machine on a flat, level surface and engage the parking brake.
2. Lock the deck lift pedal in the 5” (12,7 cm) position.
3. Check that blades are installed with the tabs pointing up toward deck as shown in Figure 18. Torque bolts to 70 ft.lbs. (94 N.m.).

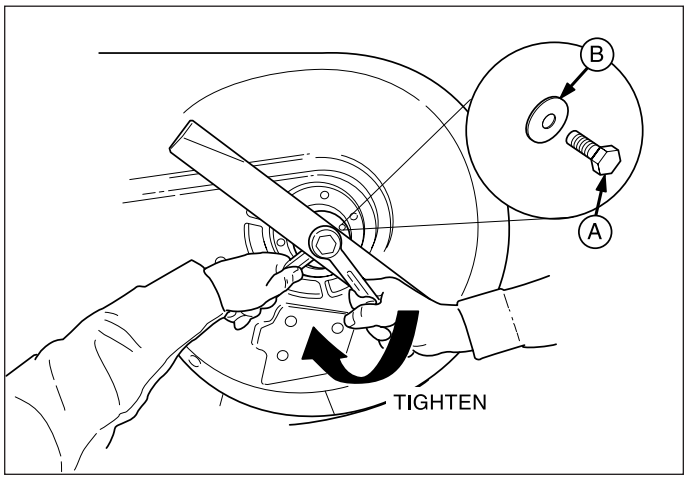


**Figure 18. Check Blade Torque**
**A. Blade Bolt**
**B. Flat Washer**

Setup

# 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. To check the inner lift rod timing, measure and record the distance between the inner lift pivots and the inner rod pivots. Repeat for other side of unit. See Figure 19.
3. To check the outer lift rod timing, measure and record the distance between the outer lift pivots and the outer rod pivots. Repeat for other side of unit. See Figure 19.
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” (3,17mm) difference), adjustment is required, continue with Step 5.
5. Lock the deck lift pedal in the 5” (12,7cm) position. Remove the cutting height adjustment pin (Figure 20) and lower the mower deck.
6. 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” (7.6cm) position to hold in place.
7. Block up the mower deck until all hanger chains are slack.
8. Refer to Figure 21. To adjust the inner lift rod, loosen the jam nut on the front ball joint then remove the 1/2” hardware fastening the ball joint the the lift pivot arm. Turn the ball joint clockwise to shorten the distance between the rod pivots or counterclockwise 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.
9. Refer to Figure 21. To adjust the inner lift rod, loosen the jam nut on the front ball joint then remove the 1/2” hardware fastening the ball joint the the lift pivot arm. Turn the ball joint clockwise to shorten the distance between the rod pivots or counterclockwise 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.
10. Remove blocks from under the mower deck.
11. Lift mower deck and reinstall adjustment pin in desired mowing height.

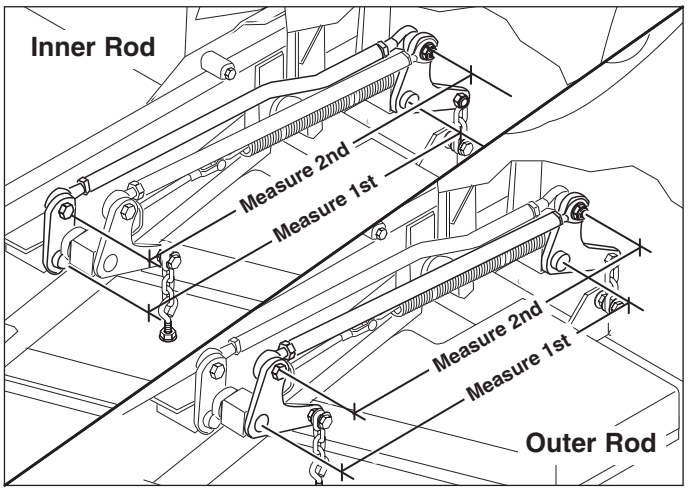


**Figure 19. Measure the Inner & Outer Lift Rods**

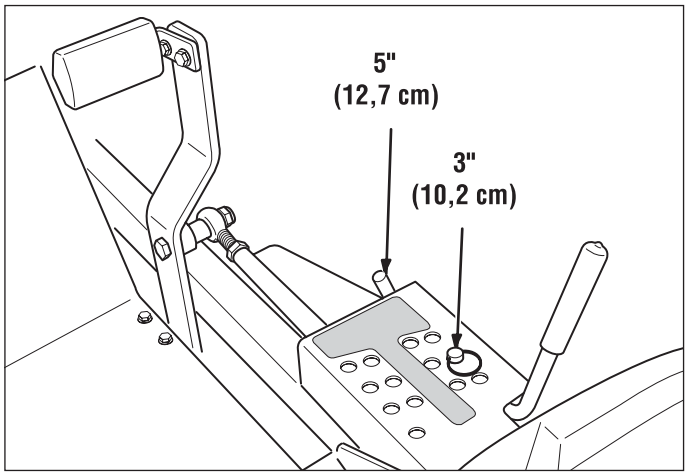


**Figure 20. Deck Lift Pedal & Pin Position**

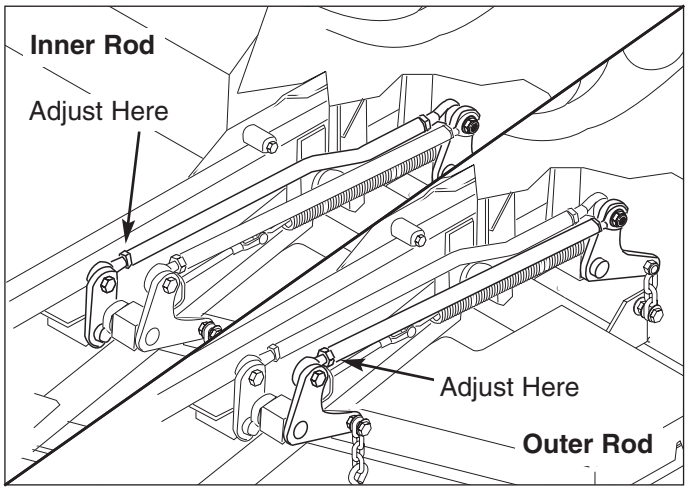


**Figure 21. Adjust the Inner & Outer Lift Rods**

Setup

# Check & Level the Mower Deck

*NOTE: Before adjusting the deck level, the deck lift rod timing must be checked and adjusted if necessary.*

1. Park machine on a flat, level surface and engage the parking brake. Rear tires must be inflated to 15 psi (1,03 bar); front tires to 25 psi (1,72 bar).
2. Install the cutting height adjustment pin in the 4” (10,2 cm) position.
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 22.
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 23.
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 23.
6. Remove all 2 x 4 blocks and spacers from under the mower deck.
7. **For your safety, DO NOT handle mower blades with bare hands.** Position the outside mower blades so that they face front-to-back (Figure 24).
8. Measure from the front tip of the blade from the cutting edge to the ground. Measure from the rear tip of the blade from the cutting edge to the ground. Repeat this process for the other side of the machine. The front measurements should be 4” (10,2 cm), the back measurements should be 4-1/4” (10,8 cm). If the measurements are greater than 1/8” (3,17 mm) of what they should be adjust the deck height until they are correct.

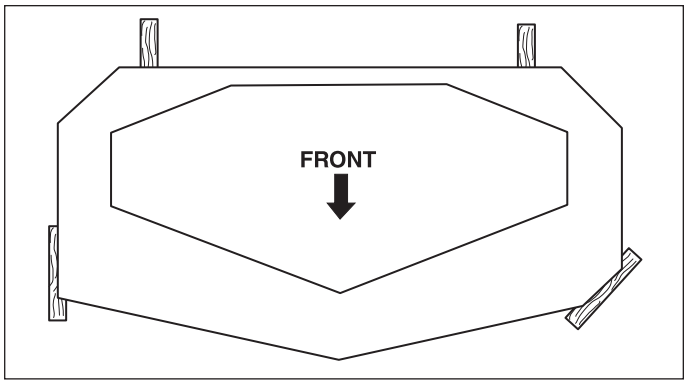


**Figure 22. 2 x 4 Locations**

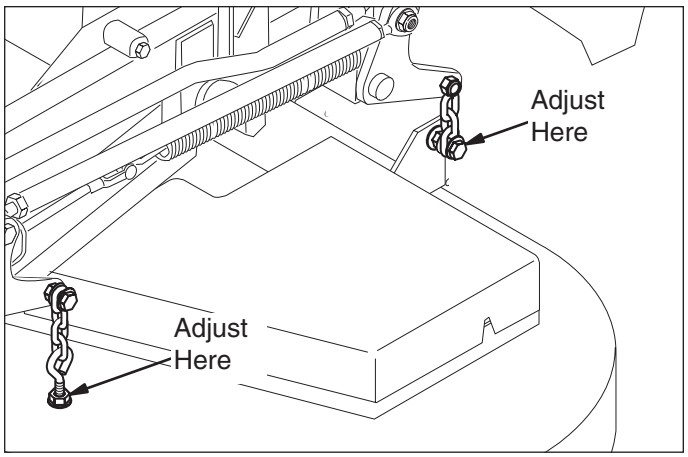


**Figure 23. Hanger Chain Adjustment**

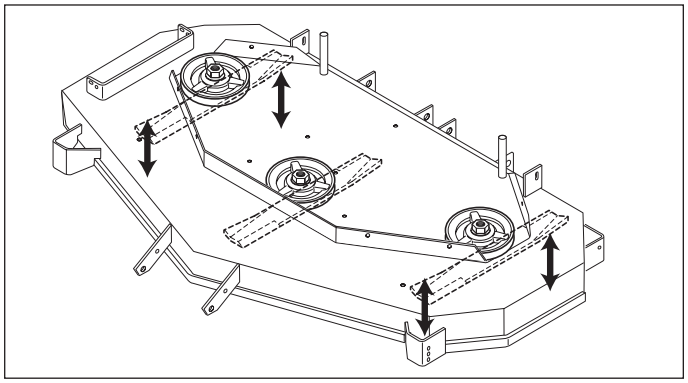

**Figure 24. Checking The Blade Height Measurement**

Setup

# Deck Lift Spring

The deck lift springs (A, Figure 25) 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.

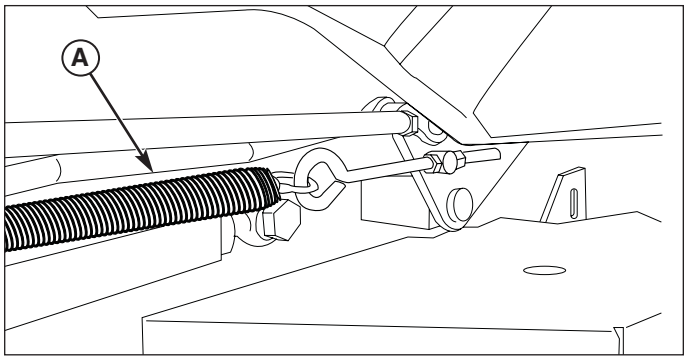


**Figure 25. Deck Lift Spring Location**
**A. Deck Lift Spring**

Setup

# Check Deck Drive Belt

**To avoid damaging belts, DO NOT PRY BELTS OVER PULLEYS.**

1. Make sure the V-side of the belt runs in the pulley grooves (Figure 26).
2. 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 27). Carefully rotate the breaker bar COUNTER-CLOCKWISE, which will relieve the tension on the belt exerted from the idler arm.
3. Re-seat belt and carefully release the tension on the breaker bar.

## 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.**

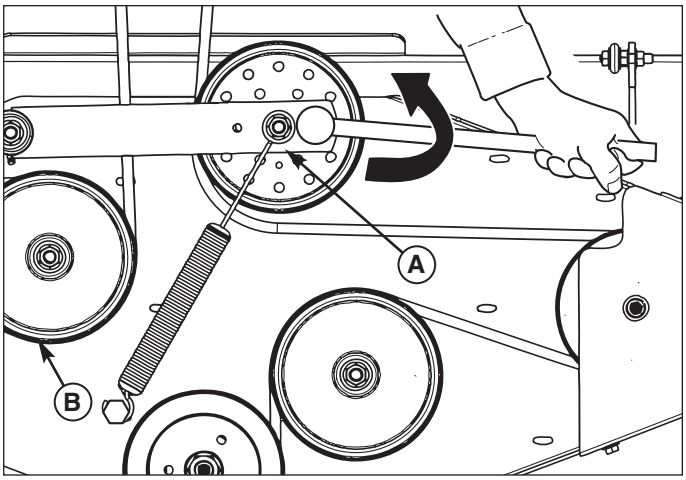


**Figure 26. Mower PTO Belt**
**A. Idler Arm**
**B. Stationary Idler Pulley**

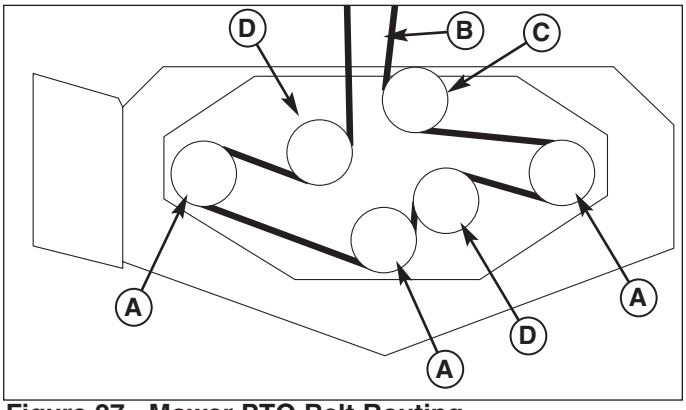


**Figure 27. Mower PTO Belt Routing**
**A. Spindle Pulley**
**B. PTO Drive Belt**
**C. Spring-loaded Idler Pulley**
**D. Stationary Idler Pulley**

Setup

# Lubrication

Lubricate the unit at the locations shown in Figure 28 through 32 as well as the following lubrication points.

**Grease:**

- front caster wheel axles & yokes
- deck lift pivot blocks
- mower deck spindles
- mower deck idler arm

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 5022285) is recommended, automotive-type high-temperature, lithium grease may be used when this is not available.

*NOTE: For greasing the front casters, the grease fitting plug (A, Figure 31) must be removed and a grease fitting installed. After greasing, the grease fitting will need to be removed and the grease fitting plug reinstalled.*

**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.

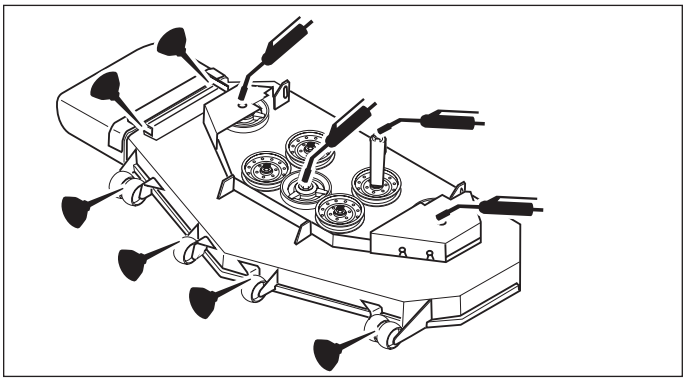

**Figure 28. Deck Lubrication**

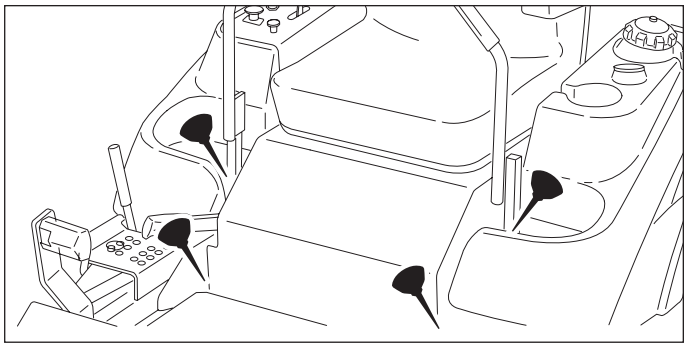

**Figure 29. Control Handle Pivots & Seat Plate Pivots**

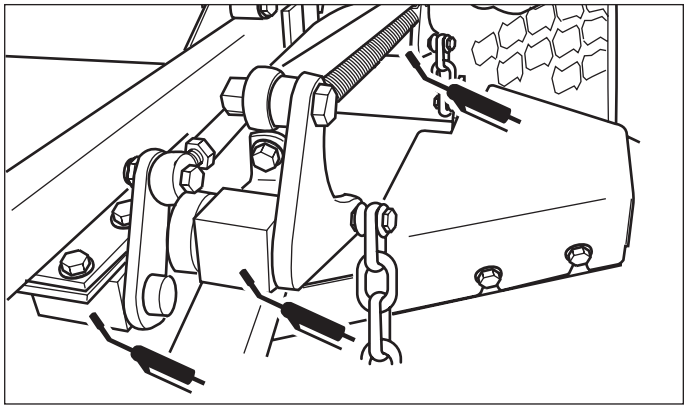

**Figure 30. Deck Lift Linkage Pivots**

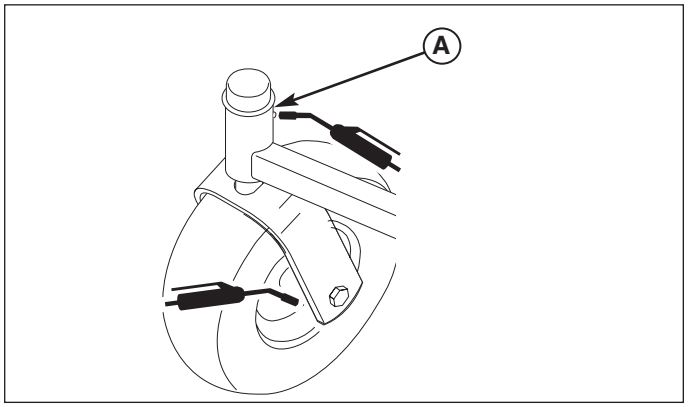


**Figure 31. Front Caster & Wheel**
**A. Grease Fitting Plug**

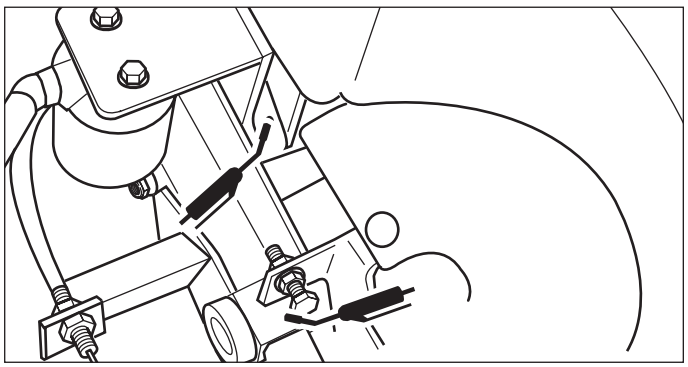

**Figure 32. Suspension & Deck Lift Pivots**

Setup

# Adding Fuel

**To add fuel:**

*NOTE: Refer to the Diesel Fuel Specification Chart (Figure 33) for specific fuel recommendations.*

1. Remove the fuel cap (A, Figure 34).
2. Fill the tank to the bottom of the fill tube. This will leave room in the tank for fuel expansion.

*NOTE: Do not overfill. Refer to your engine manual for specific fuel recommendations.*

3. Install and hand tighten the fuel cap.
4. Repeat same process for opposite tank.

Setup

# Priming The Fuel System

**To prime the fuel system:**

1. Make sure that there is fuel in the fuel tanks and that both fuel tank shut off valves are open.
2. Turn the key to the ON position (not the start position). The electric fuel pump feeds fuel to the system.
3. When the fuel filter (A, Figure 35) is free of air bubbles the engine is ready to start.

| Diesel Fuel Specification | Location |
|---|---|
| No. 2-D, No. 1-D, ASTM D975-94 | USA |
| EN590:96 | European Union |
| ISO 8217 DMX | International |
| BS2869-A1 or A2 | United Kingdom |
| JIS K2204 Grade No. 2 | Japan |
| KSM-2610 | Korea |
| GB252 | China |

**Figure 33. Diesel fuel Specification Chart**

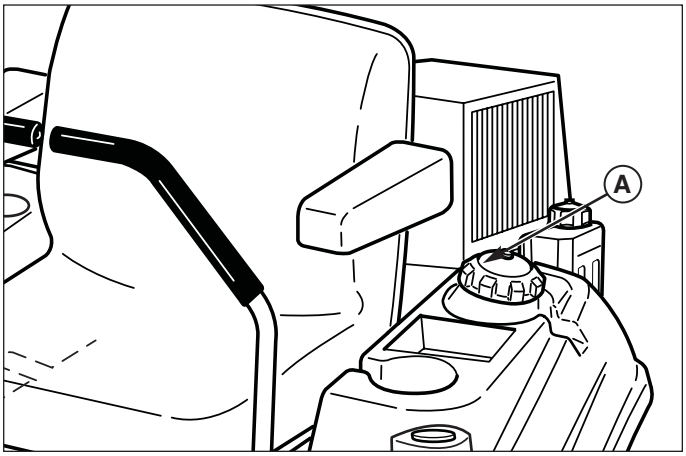


**Figure 34. Adding Fuel**
**A. Fuel Cap**

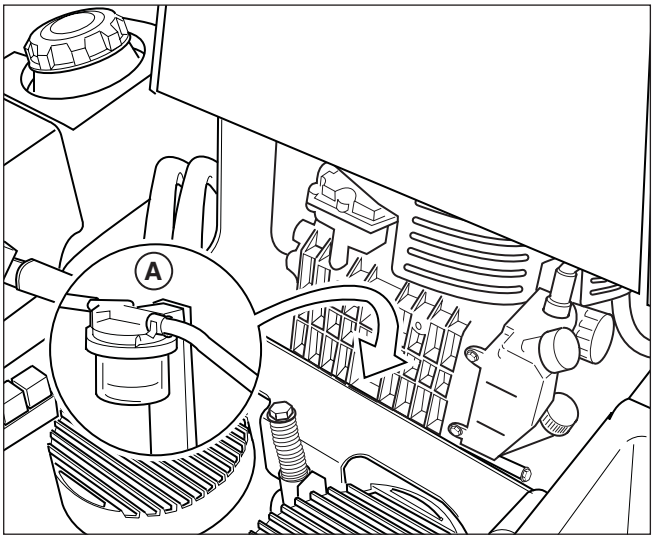


**Figure 35. Fuel System Priming**
**A. Fuel Filter**


# Starting The Engine

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.


# 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: oil, engine coolant, fuel and hydraulic oil.
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.

**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.

**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 out of their neutral positions 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 36. The seat can be adjusted forward and back. Move the lever towards the left, position the seat as desired, and release the lever to lock the seat into position.

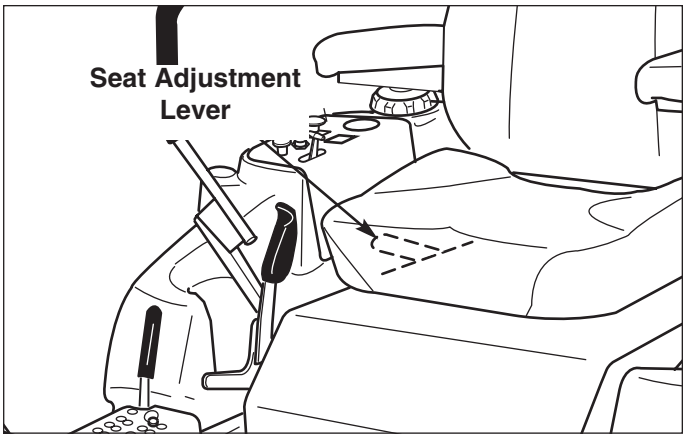


**Figure 36. Seat Adjustment**

## Motion Control Handle 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 37) and pivot the levers (C) to align with each other.

**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 readjust the handle alignment as described above.

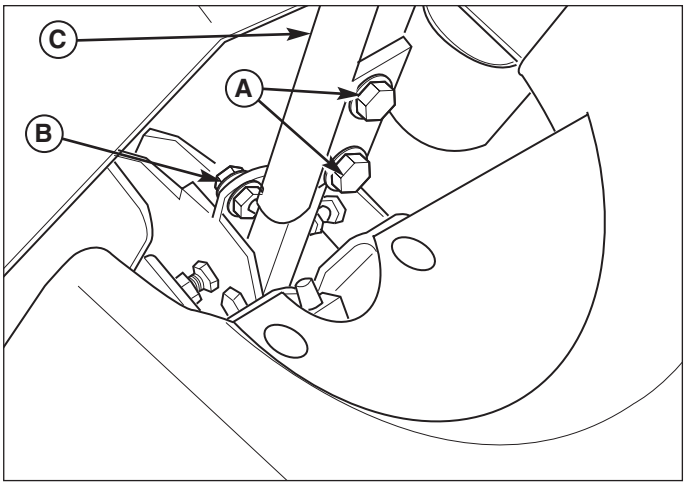


**Figure 37. Control Lever Adjustment**
**A. Alignment Hardware**
**B. Placement Hardware**
**C. Ground Speed Control Lever**

# Neutral Adjustment & Return-To-Neutral

**NEUTRAL ADJUSTMENT**

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

*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 three nuts (B, Figure 38) on the linkage rod. The first two are to be used together to turn the rod and the third (towards the front of the machine) is used to lock the rod in place. Loosen the jam nut that locks against the ball joint (C, Figure 38) and turn the linkage rod (A) to adjust. If the machine creeps forward, turn the rod CLOCKWISE (while standing at the rear of the machine, facing forward), if the machine creeps backward, turn the rod COUNTER-CLOCKWISE.
3. Lock the jam nut (B) against the ball joint 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.*

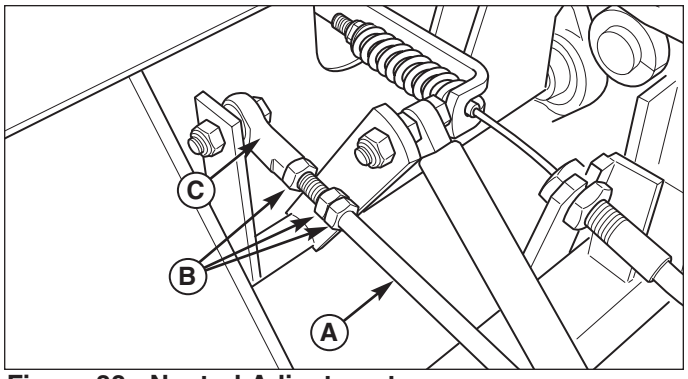


**Figure 38. Neutral Adjustment (RH side shown)**
**A. Adjustment Linkage Rod**
**B. Nuts**
**C. Ball Joint**

**RETURN-TO-NEUTRAL ADJUSTMENT**

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

1. Disengage the PTO, engage the parking brake and turn off the engine.
2. Move the ground speed control levers into the operating position, pull levers rearward and release.
3. Move the ground speed control levers out towards the neutral position. If the levers do not align with the notches in the neutral lock plate, it is necessary to adjust the return spring (A, Figure 39).

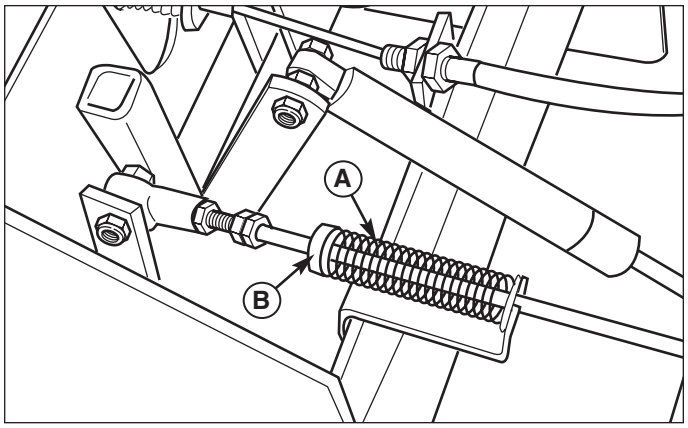


**Figure 39. Return to Neutral Adjustment**
**A. Return Spring**
**B. Set Collar**

**TO ADJUST:**

1. Loosen the set collar (B) locked against the return spring (A).
2. Lock the ground speed control levers in neutral.
3. Tighten set collar against the return spring.
4. Pull lever rearward and release to check that the lever stops aligned with notch in the neutral lock plate.

*It is important to note that after every adjustment of the neutral return spring, the lever must be returned to locked position to properly check the neutral position.*


# Parking Brake Adjustment

1. Disengage the PTO, engage the parking brake, stop the engine and remove the ignition key.
2. Raise the seat plate.
3. Locate the brake spring (A, Figure 40).
4. With the parking brake engaged, measure the compressed spring length. The spring should be 1-15/16” - 2” (4,9 - 5,1 cm) when compressed.
5. If the spring is not within this range, release the parking brake and turn the adjustment nut (B) to compress or release the spring.
6. Engage the parking brake and remeasure the spring.

## ⚠ CAUTION

**Do not adjust the spring to be shorter than 1-15/16” (4,9 cm) when compressed. This may damage the brake mechanism.**

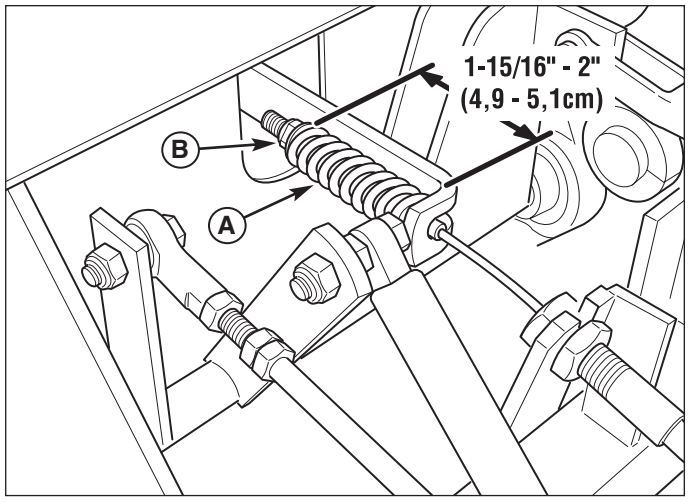


**Figure 40. Parking Brake Adjustment**
**A. Brake Spring**
**B. Adjustment Nut**

# Suspension Adjustment

The shock assembly can be adjusted to vary the amount of pre-load applied to the springs. This allows the operator to maintain the ride height.

Use less pre-load for light weight operators. Use more pre-load for heavy weight operators.

**To adjust the spring pre-load:**

1. Park machine on a flat, level surface. Disengage the PTO, stop the engine and engage the parking brake.
2. See Figure 41. Using the supplied spanner wrench (p/n 5022853), insert the tip of the wrench into the notch in the pre-load adjuster. While holding the wrench with both hands, turn CLOCKWISE to decrease the pre-load, turn COUNTER-CLOCKWISE to increase the pre-load. Make sure that for each shock (Figure 41) that the left-hand and right-hand are set to the same amount of pre-load.

*NOTE: Spanner wrench is located under the seat. Rear tires must be removed to adjust the rear suspension*

## ⚠ WARNING

**Use two hands when adjusting the shock springs. This will prevent the wrench from slipping while pressure is being applied.**

**To adjust the upper mounting position (Rear Suspension):**

1. Park machine on a flat, level surface. Disengage the PTO, stop the engine and engage the parking brake.
2. Raise the rear of the machine and secure with jackstands. The jackstands must under the bumper. Chock the front wheels to prevent the machine from rolling.
3. Position the jack under the cross member that ties the suspension arms together 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 position #2 (see Figure 40. Adjust the jack to align the shock mounts to the shocks.
5. Reinstall the upper shock mounting hardware and tighten securely.
6. Remove the jack from under the suspension cross member.
7. Remove the jackstands from under the machine.

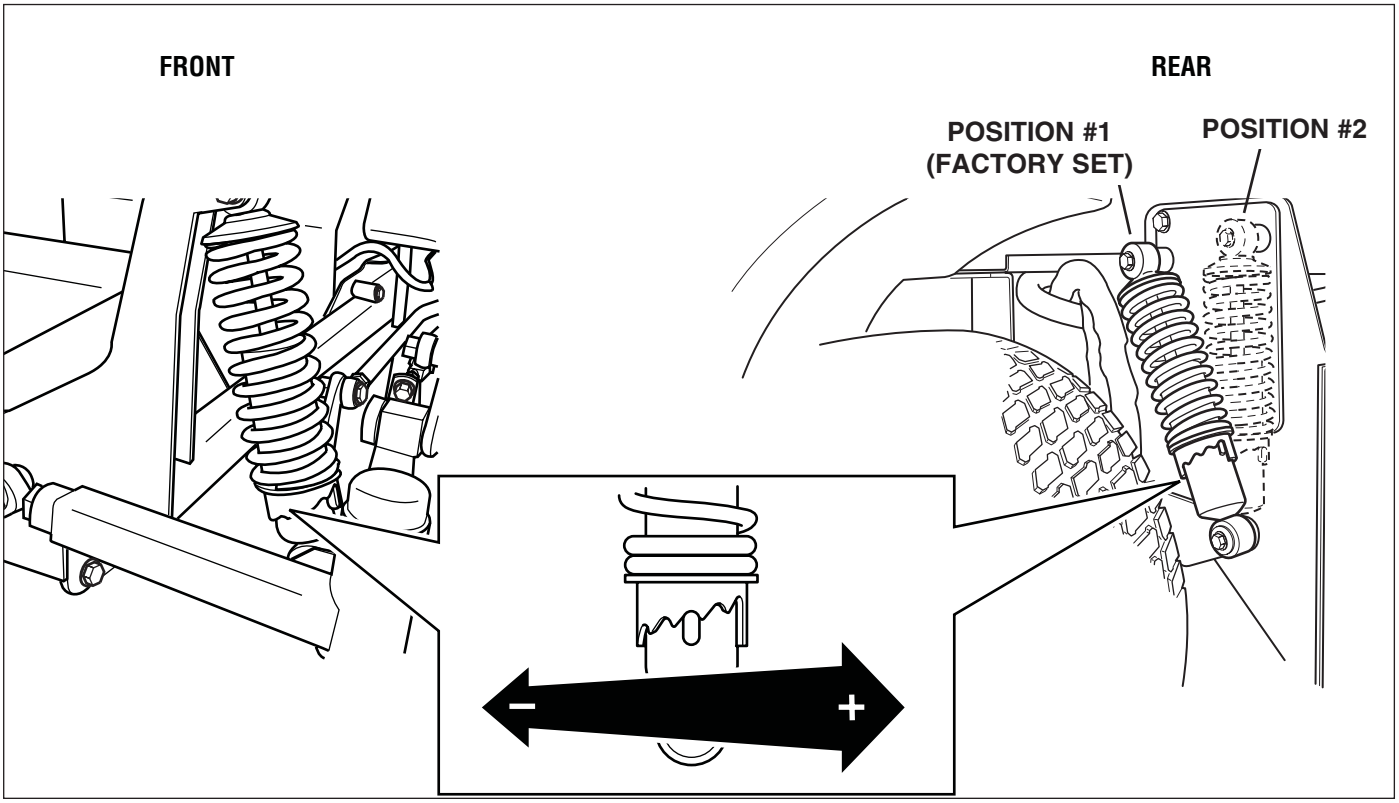


**Figure 41. Suspension Adjustment**

# Notes

**Briggs & Stratton Yard Power Products Group**
5375 North Main Street
Munnsville, NY 13409
(800) 933-6175
www.ferrisindustries.com