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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</tr>
</tbody>
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SETUP PROCEDURES

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 (A, Figure 2) 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, engage the parking brake, and then re-engage the transmissions by rotating the transmission release levers to the “closed” position (B, Figure 1). 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.
Connect Battery

**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 the battery, especially while charging.
- When installing the battery cables, CONNECT THE POSITIVE (+) CABLE FIRST and the negative (-) cable 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.
2. Connect the black negative battery cable (B) to the negative battery post.

Zero-Turn Rider Assembly

Installing the Ground Speed Control Levers

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

1. Remove the ground speed control levers and mounting hardware from the handle bar box.

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

2. Install the ground speed control levers (A, Figure 4) onto the control base and secure with the 5/16 hardware (B) included with the control levers. Prior to tightening the hardware, align the levers with each other.

Ground Speed Control Lever Adjustment

The ground speed control levers can be adjusted in three ways. The height of the levers, the alignment of the control levers, and the placement of the control levers (how close the ends are to one another) can be adjusted.
HEIGHT ADJUSTMENT
1. Remove the mounting hardware (B, Figure 4).
2. Position the ground speed control lever (A) either up or down from its original position and reinstall the mounting hardware.
3. Perform the Alignment Adjustment.

ALIGNMENT ADJUSTMENT
1. Loosen the mounting hardware (B, Figure 4).
2. Pivot the ground speed control levers forward or backwards to align with each other.
3. Once alignment is achieved, retighten the hardware.

PLACEMENT ADJUSTMENT
1. Loosen the mounting hardware (B, Figure 4).
2. Place the ground speed control levers in or out to adjust the amount of distance between the ends of the ground speed control levers.
3. Once placement is achieved, retighten the hardware.

Installing the Seat
This procedure is only necessary if the seat is not factory-installed on your unit.
1. Unpack the seat.
2. Install the seat (A, Figure 5) onto the seat mount plate (B) and secure with the 5/16-18 nylock flange nuts (C).

Seat Position Adjustment
The seat can be adjusted forwards and backwards.
1. Move the seat adjustment lever (D, Figure 5) to the left, position the seat as desired, and release the lever to lock the seat into position.

Roll Bar Installation

Assemble the Retainer Pins
1. Unpack the roll bar and hardware from the box.
2. Lock the snap end (A, Figure 6) of the lanyard (B) through the retainer pin handle (C) and snap together.
3. Install the lanyard anchor (D) onto the lanyard.
4. Install the hair pin (E) onto the loop end (F) of the lanyard as shown in Figure 6.
Install the Roll Bar Top Loop to the Upright Tubes

1. Assemble the top loop ([A, Figure 7]) to the left upright tube ([B]) and right upright tube ([C]) by loosely installing the 1/2" bolt ([D]), through the retainer pin assembly ([E]), then through the hole in the top loop that is closest to rear of the machine, the upright tube, and then loosely install the 1/2" side lock nut ([F]).

2. Fold the ROPS to the down position ([A, Figure 8]) and lock in place using the retainer pins and hair pin clips ([B]).

Install the Roll Bar Assembly on the Machine

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, or parts of the wire harness are in the way of the roll bar pockets.

2. From the bottom of the roll bar upright tube measure up 8" ([G, Figure 7]) and mark the distance with a marking tool or a piece of tape. Repeat for other upright tube.

3. Install the roll bar into the roll bar pockets. The roll bar is installed so that the safety decals are on the left side of the machine (as determined from the operator’s position) facing towards the front of the machine. When the mark you made is even with the top of the roll bar pocket, the holes are close to being lined up. If necessary, use a dead blow hammer and drift pin to assist in lining up the holes in the roll bar with the holes in the roll bar pocket.

4. Loosely install the (4) 1/2” bolts ([C, Figure 8]), and 1/2” washers ([D]), through the frame of the unit, the roll bar, the outer frame of the unit, and loosely install the 1/2” side lock nuts ([E]).

5. Tighten the 1/2” hardware that secures the upright tubes to the frame of the unit to 82 ft. lbs (108 Nm) of torque.

6. Tighten the 1/2” bolt and side lock nuts that secure the top loop to the upright tubes. Do not over-tighten. The top loop should pivot snugly with the retainer pins removed.

7. Raise the top loop to the upright position and install the retainer pins and hair pin clips to secure the roll bar in the raised position.
Install the Safety Decals (Export Models Only)
1. Remove the black and yellow CE safety decals (A, & B, Figure 9) from the publications packet.
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 on the angled part of the roll bar. The short decal, part number 5100537 (B), is installed above the roll bar pivot.

Check Fluid Levels & Tire Pressures

Check Engine Oil Level
1. Park the machine on a flat, level surface.
2. Use the dipstick (A, Figure 10) to check the engine oil level. If necessary add engine oil through the engine oil fill (B). Check the engine manufacturer’s owner’s manual for oil recommendations.

Check the Engine Coolant Level

WARNING
If engine is warm, DO NOT remove radiator cap. Escaping steam can cause burns. Never remove the radiator cap or radiator reservoir cap while the engine is hot or running. Severe thermal burns or injury can occur by escaping steam or hot coolant.
• Do NOT touch hot radiator or open reservoir when engine is running.
• Stop and allow engine to cool before removing the radiator cap or the reservoir cap and before changing or adding coolant.

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. Open the hood to gain access to the overflow reservoir (A, Figure 11) and the radiator fill cap (A, Figure 12). The overflow reservoir is located on the left hand side of the engine compartment towards the
rear of the engine. The radiator fill cap is located on the upper right hand corner of the radiator.

2. First, check the coolant level and the radiator fill port (B, Figure 12). The coolant level should be to the bottom of the radiator fill port’s fill neck (C).

3. If the coolant level is insufficient, remove the cap (A) and add coolant to bottom of the radiator fill port’s fill neck.

4. Reinstall the cap to the radiator fill port.

5. Then, check the coolant level at the overflow reservoir (A, Figure 11). The coolant level should be at the LOW (COLD) mark (B).

6. If the coolant level is insufficient, remove the cap (C) from the reservoir and add coolant to the LOW (COLD) mark.

7. Reinstall the cap to the overflow bottle.

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

Check the Transmission Oil Level

This unit is equipped with two transmission oil reservoirs. The left hand side transmission oil reservoir supplies transmission oil to the left hand side transmission and the right hand side transmission reservoir supplies transmission oil to the right hand side transmission.

Oil Type: SAE 20W-50 motor oil

1. Raise the seat plate to gain access to the transmission oil reservoirs (A, Figure 13).

2. Check the oil level when the unit is cold. The oil should be up to the “FULL COLD” mark (B) on the transmission oil reservoirs. If the oil is below this level, proceed to step 3.

3. Before removing the reservoir cap (C), make sure that the area around the reservoir cap and fill neck of the reservoir is free of dust, dirt, and other debris. Remove the reservoir caps.

4. Add oil up to the “FULL COLD” mark.

5. Re-install the reservoir cap.
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 the cut quality, and extend the tire life.

<table>
<thead>
<tr>
<th>Tire</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>25 psi (1.72 bar)</td>
</tr>
<tr>
<td>Rear</td>
<td>15 psi (1.03 bar)</td>
</tr>
</tbody>
</table>

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 the machine on a flat, level surface and engage the parking brake.
2. Lock the deck lift pedal in the TRANSPORT position.
3. Check that blades are installed with the tabs pointing up toward the deck as shown in Figure 15. Torque the bolts to 70 ft. lbs. (94 N.m.).
Check the Deck Lift Rod Timing

1. Park the machine on a flat, level surface. Disengage the PTO, engage the parking brake, turn off the engine and remove ignition key. Check that the tires are properly inflated.

2. To check the inner lift rod timing (A, Figure 16), measure and record the distance between the inner lift pivots (B) and the inner rod pivots (C). Repeat for other side of unit.

3. To check the outer lift rod timing (D), 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 Step 5.

5. Lock the deck lift pedal in the 5” (12.7 cm) position. See Figure 17. Remove the cutting height adjustment pin 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” (7.6 cm) position to hold in place.

7. Block up the mower deck until all hanger chains are slack.

8. To adjust the inner lift rod (A, Figure 18): 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 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. To adjust the outer lift rod (E, Figure 18): 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 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.

**Check and Level the Mower Deck**

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

**Determining if the Deck Leveling Needs to Be Adjusted**

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid Injury! Mower blades are sharp. Always wear gloves when handling blades or working near blades.</td>
</tr>
</tbody>
</table>

1. Park the machine on a flat, level surface. Disengage the PTO, engage the parking brake, turn off the engine and remove ignition key. Check that the tires are properly inflated.

2. Place the deck height adjustment pin in the 4" (10,2 cm) position.

3. See Figure 19. Position the outside mower blades so they face front-to-back.

4. Measure the front tip (A, Figure 19) of the blade from the cutting edge to the ground.

5. Measure the rear tip (A) of the blade from the cutting edge to the ground.

6. Repeat the process for 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 are not correct, adjust the deck leveling.

**Deck Leveling Adjustment**

1. Place the deck height adjustment pin in the 4" (10,2 cm) position.

2. Loosen the jam nut (A, Figure 20) on the deck linkages (B).

3. Turn the hex adjusters on the deck linkages (C) clockwise to raise the mower deck or counterclockwise to lower the mower deck.

*NOTE: If you are lowering the mower deck measure the amount of visible threads (D) on the deck linkages. If the
amount of visible threads shown reaches 2” (5,1 cm) for the front linkages or 1-1/2” (3,8 cm) for the rear linkages, do not lower the mower deck by adjusting the deck linkage any further.

4. Re-check the measurements from the tips of the mower blades to the ground. The front measurements should equal 4" (10,2 cm). The rear measurement should equals 4-1/4" (10,8 cm).
   • if the measurements are correct, tighten the jam nuts on the deck linkages. The adjustment procedure is complete.
   • If the measurements are not correct, the hole that the deck linkage is mounted in on the mower deck will have to be changed.

5. Place blocking underneath all four corners of the mower deck.

6. Re-position the hardware (A, Figure 21) that secures the deck linkage to the mower deck.
   • If the mower deck was being raised when it was unable to achieve the correct measurements, position the hardware in the next lower hole (B) in the mower deck mount (C).
   • If the mower deck was being lowered when it was unable to achieve the correct measurements, position the hardware in the next higher hole in the mower deck mount.

7. Remove the blocking from under the mower deck.

8. Re-check the measurements from the tips of the mower blades to the ground. The front measurement should equal 4” (10,2 cm). The rear measurement should equal 4-1/4” (10,8 cm).
   • if the measurements are correct, tighten the jam nuts on the deck linkages. The adjustment procedure is complete.
   • If the measurements are not correct, turn the hex adjusters on the deck linkages until the measurements are correct.

9. Tighten the jam nuts on the deck linkages.

---

**Deck Lift Assist Spring**

The deck lift springs (A, Figure 22) 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.
Check Deck Drive Belt

1. Lower the mower deck to its lowest cutting position.
2. Remove the mower deck guards and floor pan to gain access to the mower deck belt.
3. Make sure that the V-side of the belt (A, Figure 23) runs in the pulley grooves of the spindle pulleys (E), and the PTO clutch pulley (D). Make sure that the flat side of the belt contacts the face of the rear guide pulley (F), the front stationary pulley (G), and the adjustable idler pulley (H), and the rear stationary pulley (C).

4. If the 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 (B). Carefully rotate the breaker bar clockwise, which will relieve the tension on the belt exerted from the idler arm.
5. Re-seat belt and carefully release the tension on the breaker bar.

Check the Mower Belt Idler Tensioner Spring Length
1. Set the mower deck to the 3-1/2" (8.9 cm) position.
2. Use the Mower Belt Idler Tensioner Spring Length chart to determine the correct spring length for your unit.

<table>
<thead>
<tr>
<th>Mower Belt Idler Tensioner Spring Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck Size</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>52&quot; Mower Deck</td>
</tr>
<tr>
<td>61&quot; Mower Deck</td>
</tr>
</tbody>
</table>

3. Measure the coil length (A, Figure 24) of the mower belt idler tensioner spring (B). The measurement should equal the measurement as indicated in the chart. If not, perform the Adjust the Mower Belt Idler Tensioner Spring Length procedure.

Adjust the Mower Belt Idler Tensioner Spring Length
1. Loosen the jam nut (C, Figure 24) on the eyebolt (D).
2. Turn the adjustment nut (E) until the measurement as indicated in the chart is achieved.
3. Re-tighten the jam nut.
4. Re-install the mower deck guards and the floor pan.
Lubrication

Lubricate the unit at the locations shown in Figure 25, Figure 26, Figure 27, and Figure 28 as well as the following lubrication points:

<table>
<thead>
<tr>
<th>Grease</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>front caster wheel axles &amp; yokes</td>
<td></td>
</tr>
<tr>
<td>deck lift pivot blocks</td>
<td></td>
</tr>
<tr>
<td>mower deck spindles</td>
<td></td>
</tr>
<tr>
<td>mower deck idler arm</td>
<td></td>
</tr>
<tr>
<td>transmission cradle pivot points</td>
<td></td>
</tr>
</tbody>
</table>

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

Not all greases are compatible. Red grease (p/n 5022285) is recommended, automotive-type, high-temperature, lithium grease may be used when this is not available.

<table>
<thead>
<tr>
<th>Oil</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>control handle pivots</td>
<td></td>
</tr>
<tr>
<td>seat plate pivots</td>
<td></td>
</tr>
<tr>
<td>deck lift pivots</td>
<td></td>
</tr>
<tr>
<td>discharge chute hinge</td>
<td></td>
</tr>
</tbody>
</table>

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 fitting and surfaces clean both before and after lubrication.
Lubricate the Front Casters

**Interval:** Annually

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

**Adding Fuel**

**To add fuel:**

1. Using a clean rag or cloth wipe any dirt or debris from around the fuel caps (A, Figure 29) and the fuel filler necks.

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

2. Fill the fuel tank to the bottom of the fill tube. This will leave room in the tank for fuel expansion.
3. Install and hand tighten the fuel cap.
4. Repeat the same process for the opposite tank.

**Priming the Fuel System**

Priming the fuel system removes any air bubbles from the fuel system.

**WARNING**

Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the ignition switch off when changing fuel filter or water separator element. Clean up fuel spills immediately.

The fuel system would only need to be primed under the following conditions:

- Before starting the engine for the first time.
- After running the machine out of fuel and fresh fuel has been added to the fuel tanks.
- After performing maintenance on the fuel system, such as changing the fuel filter or replacing a fuel system component.
To prime the fuel system:
Each fuel tank is equipped with a fuel shut off valve (A, Figure 30). The fuel shut off valve is located on the underside of the fuel tank towards the front of the tank. Positioning the fuel shut off valve’s lever so that it faces towards the rear of the machine allows fuel to flow (C), turning the valve 90 degrees from that position shuts off the flow of fuel (B).

1. Make sure that there is fuel in the fuel tanks and that both fuel tank shut off valves are open (C).
2. Turn the key to the RUN position (not the start position) for 10 to 15 seconds. The electric fuel pump feeds fuel to the system.

Starting the Engine
1. While sitting in the operator’s 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/RUN 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.

In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. Use this method only in emergency situations. For normal engine shut down follow the procedure given in Stopping the Rider.
**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 zero-turn rider does not pass the test, DO NOT operate the zero-turn rider. Under no circumstance should you attempt to defeat the purpose of the safety system.

---

**Functional Tests**

1. Check the zero-turn rider 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: engine 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.

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**Safety Interlock System**

This unit is equipped with safety interlock switches. These safety systems are present for your safety, do not attempt to bypass the safety switches, and never tamper with the 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
- Ground speed control levers are not in the NEUTRAL position.

**Test 2 — Engine SHOULD crank if:**
- PTO switch is NOT engaged, AND
- Parking brake is engaged, AND
- Ground speed control levers 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 ground speed control levers out of their neutral positions before disengaging parking brake.

**Test 4 — Blade Brake Check**

Mower blades and the mower drive belt should come to a complete stop within seven (7) seconds after the electric PTO switch is turned off (or the operator rises off seat). If the 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 ground speed control levers must be locked in the NEUTRAL position after the operator returns to the seat in order to start the engine.

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**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

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

**Speed Balancing Adjustment**

If the rider veers to the right or left when the ground speed control levers are in the maximum forward position, the top speed of each of these levers can be balanced by turning the adjustment bolt(s) (A, Figure 31). Only adjust the speed of the wheel that is traveling faster.

**To Reduce the Speed of the Faster Wheel:**
1. Loosen the securing nut (B).
2. Turn the top speed adjustment bolt **counterclockwise** to reduce the speed.
3. Retighten the securing nut when adjustment is complete.

**WARNING**

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

The neutral system for this mower 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 32) that connects the ground speed control lever to the pivot.

Determining if Adjustment is Necessary: If the tractor “creeps” while the ground speed control levers are locked in the NEUTRAL, 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 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 counterclockwise (while standing at the rear of the machine, facing forward).
3. Lock the jam nut against the ball joints 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 on how much the machine 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, ignition key removed, and zero-turn rider parked on level ground.

1. Lock the ground speed control lever in the neutral position.
2. Loosen the set collar (A, Figure 33) on the neutral return rod (B).
3. Position the set collar along the neutral return rod until it contacts and very lightly compresses the neutral return spring (C). Tighten the set collar.
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 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 it’s return motion past the notch (while standing at the rear of the machine), reposition the set collar so the neutral return spring is less compressed.
   - if the ground speed control lever stops it’s return motion before the notch (while standing at the rear of the machine), re-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.
Suspension Adjustment

The shock assemblies (A, Figure 34) can be adjusted in two ways to allow the operator to customize the ride according to the operator’s weight and/or operating conditions. You have the option of adjusting the spring pre-load and/or the upper mounting position.

**Items to consider be 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.

**To Adjust the Spring Pre-load:**

1. Park the machine on a flat, level surface. Disengage the PTO, stop the engine, and engage the parking brake.
2. Chock the front wheels to prevent the machine from rolling. Raise the rear of the machine and secure with jack stands.
3. Remove the rear drive tires.
   
   **NOTE:** Spring loaded components can kick back causing injury. Use two hands when adjusting the shock springs. This will prevent the wrench from slipping while pressure is being applied.
4. Using the supplied spanner wrench (p/n 5022853) (B, Figure 34), insert the tip of the wrench into the notch in the pre-load adjuster. While holding the wrench in place with one hand, turn counter-clockwise to increase the pre-load, turn clockwise to decrease the pre-load. Make sure both shocks are set to the same amount of pre-load.
5. 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 machine.

**To Adjust the Upper Mounting Position (Rear Shocks):**

1. Park the machine on a flat, level surface. Engage the parking brake, disengage the PTO, turn the ignition switch to OFF, and remove the key from the ignition.
2. Chock the front wheels to prevent the machine from rolling. Raise the rear of the machine and secure with jack stands. The jack stands must be under the bumper of the machine.
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.
4. Remove the upper shock mounting hardware and pivot the shock to the position labelled #2 in Figure 34. 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 machine.

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**Figure 34 - Suspension Adjustment**
Parking Brake Adjustment

The parking brake mechanism consists of two parking brake cables (A, Figure 35 & Figure 36) that connect the parking brake cable shaft to the parking brake control arms on the transmissions. There is a parking brake spring (B, Figure 35 & Figure 36) on each parking brake cable. The left-hand side parking brake cable (A, Figure 35) is located underneath the seat plate by the parking brake shaft. The right-hand parking brake cable (A, Figure 36) is located underneath the engine deck by the right-hand transmissions parking brake control arm. The position of the parking brake cables 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 spring.

1. Park the machine on a flat, level surface such as a concrete floor. Engage the parking brake, disengage the PTO, turn the ignition switch to OFF, and remove the key from the ignition. Chock the tires.

2. Raise the seat plate to gain access to the left-hand parking brake spring (B, Figure 35).

3. With the parking brake engaged measure the left-hand side parking brake spring. The left hand parking brake spring should measure 2-1/2" (6.4 cm) when compressed.

4. If the length of the left hand spring does not measure 2-1/2” (6.4 cm), the length of the spring will need to be adjusted.

5. Disengage the parking brake.

6. Loosen the set collar (C) and slide it away from the back of the parking brake spring bracket (D).

7. **CAUTION**
   Do not adjust the left-hand parking brake spring to be shorter than 2-1/4” (5.72 cm) when compressed. This may damage the spring mechanism.

8. Turn the adjustment nut (E) to compress or release the spring.

9. Engage the parking brake and re-measure the spring. Continue this process until the compressed length measures 2-1/2” (6.4 cm).

10. With the parking brake engaged position the set collar 1/4” (.64 cm) away from the parking brake.
spring bracket and tighten.

10. Locate the right-hand parking brake spring (**A**, **Figure 36**) located by the right-hand transmission. With the parking brake engaged measure the right-hand side parking brake spring. The right-hand parking brake spring should measure 2-1/2” (6.4 cm) when compressed.

11. If the length of the right-hand spring does not measure 2-1/2” (6.4 cm), the length of the spring will need to be adjusted.

12. Disengage the parking brake.

13. Loosen the set collar (**C**) and slide it away from the back of the parking brake spring bracket (**D**).

**CAUTION**

Do not adjust the right-hand parking brake spring to be shorter than 2-1/4” (5.72 cm) when compressed. This may damage the spring mechanism.

14. Turn the adjustment nut (**E**) to compress or release the spring.

15. Engage the parking brake and re-measure the spring. Continue this process until the compressed length measures 2-1/2” (6.4 cm).

16. With the parking brake engaged position the set collar 1/4” (.64 cm) away from the parking brake spring bracket and tighten.

*If this does not correct the braking problem, see your dealer.*