

OPERATOR'S MANUAL

Zero-Turn Tractor Lapbar Drive Control Levers

Record Product Information

Before setting up and operating your new equipment, please locate the model plate on the equipment and record the information in the provided area to the right. You can locate the model plate by lifting up the seat and looking under the seat pan. This information will be necessary, should you seek technical support via our web site or with your local authorized service dealer.

MODEL NUMBER

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SERIAL NUMBER

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⚠ WARNING

Read and follow all safety rules and instructions in this manual before attempting to operate this machine.
Failure to comply with these instructions may result in personal injury.

⚠ WARNING

California Proposition 65

Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.
Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

NOTE: This Operator's Manual covers several models. Features may vary by model. Not all features in this manual are applicable to all models and the model depicted may differ from yours.



SAFE OPERATIONS PRACTICES

⚠ WARNING

⚠ This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol. **HEED ITS WARNING!**

⚠ DANGER

This machine was built to be operated according to the safe operation practices in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

General Information

1. Read, understand, and follow all instructions on the tractor and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the tractor and disengage them quickly.
3. Never allow children under 14 years of age to operate this tractor. Children 14 and over should read and understand the instructions and safe operation practices in this manual and on the tractor and should be trained and supervised by an adult.
4. Never allow adults to operate this tractor without proper instruction.
5. If situations occur which are not covered in this manual, use care and good judgment. Contact your customer service representative for assistance.
6. According to the U.S. Consumer Products Safety Commission (CPSC) and the U.S. Environmental Protection Agency (EPA), this product has an estimated useful life of seven (7) years, under ordinary use conditions. At the end of its useful life, have the product inspected annually to ensure all mechanical and safety systems are operating properly, safely, and are not worn excessively. Failure to do so may result in accident, injury, or death.

Preparation Before Operating

1. Thoroughly inspect the area where the tractor is to be used. Remove all stones, sticks, wire, bones, toys, and other foreign objects which could be picked up and thrown by the blade(s). Thrown objects can cause serious personal injury.
2. To help avoid blade contact or a thrown object injury, keep helpers at least 75 feet (23 meters) from the tractor while it is in operation. Keep bystanders, children and pets inside during operation. Stop tractor if anyone enters the area.
3. Be aware of the tractor discharge direction and do not point it at anyone.
4. Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
5. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes, jewelry and long hair can be caught in moving parts. Never operate this tractor in bare feet or sandals.
6. Never over fill fuel tank. Fill tank to no more than 1/2" (13mm) below bottom of filler neck to allow space for fuel expansion.
7. Replace gasoline cap and tighten securely.
8. Use only accessories and attachments approved for this tractor by the tractor manufacturer. Read, understand and follow all instructions provided with the approved accessory or attachment.

Operating

1. Data indicates that operators, age 65 years and above, are involved in a large percentage of riding tractor-related injuries. These operators should evaluate their ability to operate the riding tractor safely enough to protect themselves and others from serious injury.
2. Disengage blade(s) and move the drive control levers fully outward to set the parking brake before attempting to start the engine.
3. Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet.
4. Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the tractor. Tall grass can hide obstacles.
5. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, helpers and the like. Avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
6. Check overhead clearances carefully before driving under low hanging tree branches, wires, door openings etc., where the operator may be struck or pulled from the tractor, which could result in serious injury.
7. Never leave a running tractor unattended. Always turn off blade(s), move drive control levers fully outward into park position, stop engine and remove key before dismounting.
8. Disengage blade(s), move the drive control levers fully outward to set the parking brake, stop engine and wait until the blade(s) come to a complete stop before removing grass catcher, emptying grass, unclogging chute, removing any grass or debris, or making any adjustments.
9. Your tractor is designed to cut normal residential grass of a height no more than 10" (25cm). Do not attempt to mow through unusually tall, dry grass (e.g. pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the tractor deck presenting a potential fire hazard.
10. Back up slowly. Always look down and behind before and while backing to avoid a back-over accident.
11. Never carry passengers.
12. Stay at least 10 feet (3 meters) from drop-offs, ditches, embankments or the edge of water. The tractor could suddenly turn over if a wheel is over the edge of a cliff, ditch, or if an edge caves in.
13. A missing or damaged chute deflector can cause blade contact or thrown object injuries.
14. Do not operate the tractor without the chute deflector or entire grass catcher in its proper place.
15. Use extra care with grass catchers or other attachments. These can change the stability of the tractor. Always follow the attachment manufacturer's instructions.
16. Stop the blade(s) when crossing gravel drives, walks, or roads and while not cutting grass.
17. Watch for traffic when operating near or crossing roadways. This tractor is not intended for use on any public roadway.

SAFE OPERATIONS PRACTICES

18. Mow only in daylight or good artificial light.
19. Do not operate the tractor while under the influence of alcohol or drugs.
20. Slow down before turning. Operate the tractor smoothly. Avoid erratic operation and excessive speed.
21. The muffler and engine become very hot and can cause serious burn injuries. Do not touch. Allow the tractor to cool for five minutes before attempting any service.
22. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless, and deadly gas.

Children

1. Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the tractor and the mowing activity. They do not understand the dangers. Never assume that children will remain where you last saw them.
2. Keep bystanders, children and pets inside during operation under the watchful care of a responsible adult other than the operator. Stop tractor if anyone enters the area.
3. Never carry children, even with the blade(s) shut off. They may fall off and be seriously injured or interfere with safe tractor operation. Children who have been given rides in the past could suddenly appear in the mowing area for another ride and be run over or backed over by the tractor.
4. Be alert and turn tractor off if a child or bystander enters the area.
5. To avoid back-over accidents, always look behind and down for small children.
6. Use extreme care when approaching blind corners, doorways, shrubs, trees or other objects that may block your vision of a child who may run into the path of the tractor.
7. Never allow children under 14 years of age to operate this tractor. Children 14 and over should read and understand the instructions and safe operation practices in this manual and on the tractor and should be trained and supervised by an adult.
8. Do not allow any child to joy ride on the tractor. The tractor is not a toy or a go-cart. Warn your children that the tractor can be dangerous and they must stay away from it at all times.
9. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
10. Remove key when tractor is unattended to prevent unauthorized operation. Make certain the key is inaccessible to small children.

Slope Operation for Lapbar Zero-Turn Tractors

1. Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.
2. For your safety, measure any slope before using the tractor on the sloped area. Use a slope measuring device in addition to the slope gauge included as part of this manual to measure slopes before operating this tractor on a sloped or hilly area. Smart phone applications can be also utilized to measure slopes. If the slope is greater than 15 degrees as shown on the slope gauge or a slope measuring device, do not operate this tractor on that area or serious injury could result.
3. Do not mow on slopes greater than 15 degrees (25%).
4. Do not mow up or down slopes, only mow across slopes that are less than 15 degrees (25%). Use low speeds and avoid sudden turns.
5. Do not mow on wet grass. Reduced traction could cause sliding or a loss of control.
6. Do not operate tractor under any conditions where traction, steering or stability is in question. Tires could slide even if the wheels are stopped.

7. Avoid starting and stopping on slopes. Avoid making sudden changes in speed or direction. Make turns slowly and gradually.
8. Use extra care while operating tractor with grass catcher or other attachment(s). They can affect the stability of the tractor. Do not use grass catcher on slopes greater than 10 degrees (17%).
9. Do not try to stabilize the tractor by putting your foot on the ground.
10. Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid acceleration could cause the front of the tractor to lift and rapidly roll over backwards, which could cause serious injury or death.

Fire & Fuel

1. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
2. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
3. Use only an approved gasoline container.
4. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least five minutes before refueling.
5. Never fuel tractor indoors.
6. Never store the tractor or fuel container inside where there is an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
7. If gasoline is spilled, wipe it off the engine and equipment. Clean up oil or fuel spillage and remove any fuel soaked debris. Move tractor to another area. Wait 5 minutes before starting the engine.
8. To reduce fire hazards, keep tractor free of grass, leaves, or other debris build-up. Follow the "Post-Operation Tractor Care" instructions in the Product Care section.
9. Your tractor is designed to cut normal residential grass of a height no more than 10" (25cm). Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the tractor deck presenting a potential fire hazard.
10. Never over fill fuel tank. Fill tank to no more than ½" below bottom of filler neck to allow space for fuel expansion.
11. Replace gasoline cap and tighten securely. Do not operate without fuel cap in place.
12. Allow a tractor to cool at least five minutes before fueling or storing.
13. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
14. When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
15. Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.

Hauling

1. Use properly secured full width ramps for loading and unloading a tractor for transport.
2. Use extra care when loading or unloading the tractor into a trailer or truck. This tractor should not be driven up or down ramp(s), because the tractor could tip over, causing serious personal injury. The tractor must be pushed manually on ramp(s) to load or unload properly.
3. Raise the deck to the highest position for loading clearance.

SAFE OPERATIONS PRACTICES

Towing with your Lapbar Zero-Turn Tractors

1. Do not tow a load that exceeds 250 lbs (113 kg) rolling weight and never exceed 50 lbs (22 kg) tongue weight.
2. Do not attach towed equipment except at the hitch point of the tractor.
3. Never allow children or others in or on towed equipment.
4. Do not tow on slopes greater than 5 degrees (9%). On slopes, the weight of the towed equipment may cause loss of traction and loss of control and/or the ability to stop.
5. Always use extra caution when towing with a tractor capable of making tight turns (e.g. "zero-turn" ride-on tractor). Make wide turns to avoid jack-knifing.
6. Travel slowly and allow extra distance to stop.

Service

1. Keep machine in good working order. Do not use the tractor until worn or damaged parts are replaced.
2. To avoid serious injury or death, do not modify engine in any way. Tampering with the governor setting can lead to a runaway engine and cause it to operate at unsafe speeds. Never tamper with factory setting of engine governor. Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
3. Tractor blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
4. Tractors with hydraulic pumps, hoses or motors; and/or diesel injections systems have fluid systems under pressure. Fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If fluid is injected into the skin, seek immediate medical attention. Keep body and hands away from pin holes or nozzles that eject fluid under high pressure. If a leak occurs, have the tractor immediately serviced by an authorized dealer.
5. Before cleaning, repairing, or inspecting, make certain the blade(s) and all moving parts have stopped. Turn off the engine, remove the key, and disconnect the spark plug wire(s) and ground against the engine to prevent unintended starting.
6. Check to make sure the blades come to complete stop in not more than (5) five seconds after disengaging the blade disengagement control per the interval in the Maintenance Schedule. Measure the stopping time with a stop watch. If the blades do not stop completely in less than five seconds, your tractor should be serviced professionally by an authorized dealer.
7. Check the safety interlock system per the interval in the Maintenance Schedule for proper function, as described later in this manual. If the safety interlock system does not function properly, have your tractor serviced professionally by an authorized dealer.
8. Never tamper with the safety interlock system or other safety devices. Check their proper operation regularly.
9. Check the blade(s) and engine mounting bolt torque in accordance to Maintenance Schedule chart in this manual. Also, visually inspect blade(s) for damage (e.g., excessive wear, bent, cracked). Replace the blade(s) with the original equipment manufacturer's (O.E.M.) blade(s) only.
10. Use of service parts which do not meet the original equipment specifications may lead to improper performance and compromise safety.
11. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition. Review the Maintenance Schedule chart in this manual for service interval information.
12. After striking a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the tractor for any damage. Repair the damage before starting and operating.

13. Never attempt to make adjustments or repairs to the tractor while the engine is running.
14. Grass catcher components and the chute deflector are subject to wear and damage which could expose moving parts or allow objects to be thrown. Frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only.
15. Maintain or replace safety and instruction labels, as necessary.
16. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.

Notice Regarding Emissions

Engines which are certified to comply with California and federal EPA emission regulations for SORE (Small Off Road Equipment) are certified to operate on regular unleaded gasoline, and may include the following emission control systems: Engine Modification (EM) and Three Way Catalyst (TWC) if so equipped.

When required, models are equipped with low permeation fuel lines and fuel tanks for evaporative emission control. California models may also include a carbon canister. Please contact Customer Support for information regarding the evaporative emission control configuration for your model.

Spark Arrestor

▲ WARNING

This tractor is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrestor meeting applicable local or state laws (if any).







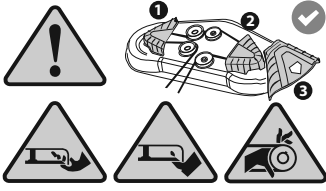


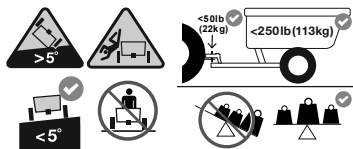
If a spark arrestor is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.

A spark arrestor for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

SAFE OPERATIONS PRACTICES

Safety Symbols

This page depicts and describes safety symbols that MAY APPEAR on this product.

Symbol	Description
 OPESymbol.com	WARNING – READ OPERATOR’S MANUAL Read, understand and follow all the safety rules and instructions in the manual(s) and on the tractor before attempting to operate this tractor. Failure to comply with this information may result in personal injury or death. Keep this manual in a safe location for future and regular reference. Using a Smart Phone, scan the QR code symbol to learn more information concerning the warnings contained on this tractor. You can also go to www.OPESymbol.com for more information.
	WARNING – AVOID THROWN OBJECTS INJURY Keep helpers at least 75' (23 meters) from machine during operation. Remove all stones, sticks, wire, bones, toys, and other foreign objects which could be picked up and thrown by the blade(s). Do not operate the tractor without the discharge cover or entire grass catcher in its proper place.
	WARNING – AVOID CHILD BACKOVER/RUNOVER/BLADE INJURY To avoid back-over accidents, always look behind and down for small children. Never carry children, even with the blade(s) shut off. Keep bystanders, children and pets inside during operation under the watchful care of a responsible adult other than the operator. Stop tractor if anyone enters the area.
	WARNING – AVOID TIP-OVER/ROLL-OVER INJURY Do not operate machine on a slope greater than 15° (25%). Do not mow up or down slopes, only mow across slopes that are less than 15 degrees (25%). Use low speeds and avoid sudden turns on slopes. Stay at least 10 feet (3 meters) from drop-offs, ditches, embankments or the edge of water
	WARNING – AVOID FIRES Your tractor is designed to cut normal residential grass of a height no more than 10" (25cm). Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Allow a tractor to cool at least five minutes before fueling or storing inside an enclosed garage or storage shed.
	WARNING – AVOID AMPUTATION INJURY Do not put hands or feet near or under the cutting deck. Contact with the blade(s) can amputate hands and feet.
	WARNING – AVOID AMPUTATION INJURY Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet. Ensure that all safety devices (guards, shields, switches, etc.) are in place and working. Belt and/or blade spindle contact can crush or injury body parts.
	WARNING – AVOID CRUSH/PINCH POINT INJURY Read, understand and follow all the safety rules and instructions in the manual(s) and on the tractor before attempting to service this tractor. For foot lift models only, the deck lift system is spring-assisted and under tension. Always use the provided multi-tool to secure the lift system in the locked position before attempting to remove the mower deck.
	WARNING – REMOVE KEY Always turn off blade(s), move the drive control levers outward into park position, stop engine and remove key before dismounting. If you are leaving the tractor unattended, always remove the key to prevent unauthorized use by children or others.
	WARNING – AVOID TOWING RELATED INJURY Do not tow a load that exceeds 250 lbs (113 kg) rolling weight and never exceed 50 lbs (22 kg) tongue weight. Never allow children or others in or on towed equipment. Do not tow on slopes greater than 5 degrees (9%). On slopes, the weight of the towed equipment may cause loss of traction, loss of control and/or loss of the ability to stop. Travel slowly and allow extra distance to stop.

⚠ WARNING

Your Responsibility — Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

SAVE THESE INSTRUCTIONS!

Slope Gauge

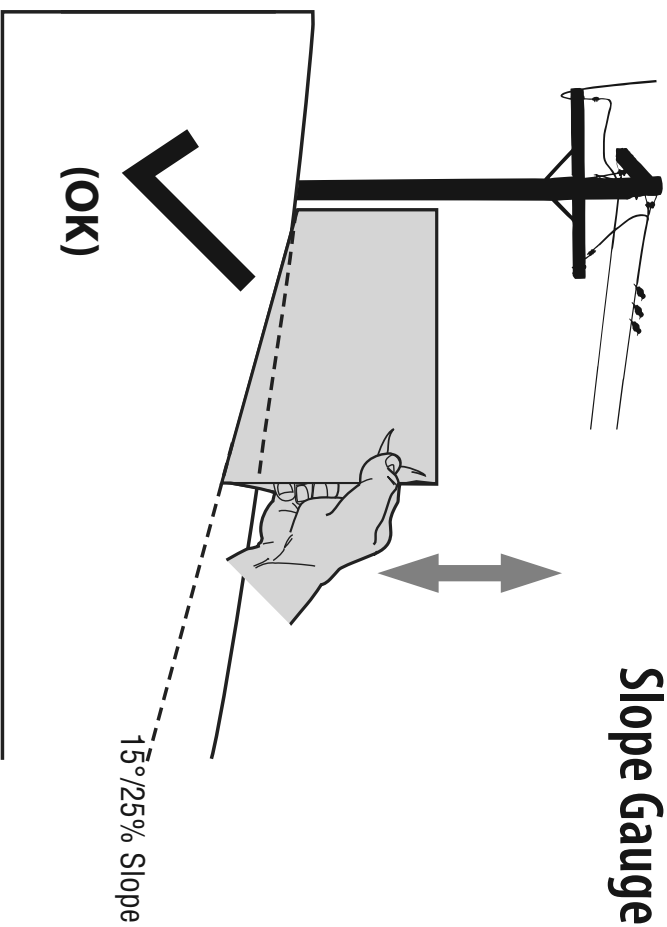


Figure 1

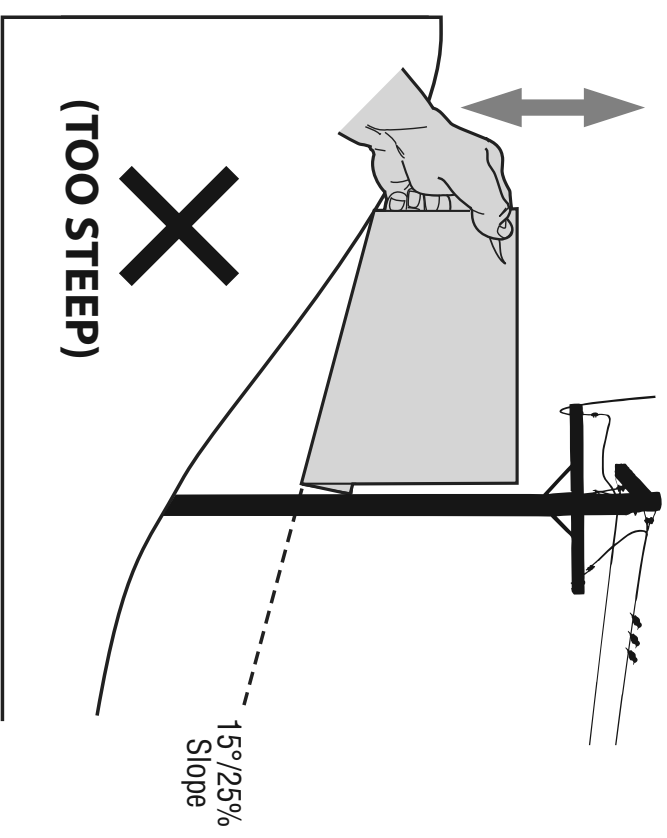


Figure 2

USE THIS SLOPE GAUGE TO DETERMINE IF A SLOPE IS TOO STEEP FOR SAFE OPERATION!

To check the slope, proceed as follows:

1. Remove this page and fold along the dashed line.
2. Locate a vertical object on or behind the slope (e.g. a pole, building, fence, tree, etc.)
3. Align either side of the slope gauge with the object (See Figure 1 and Figure 2).
4. Adjust gauge up or down until the left corner touches the slope (See Figure 1 and Figure 2).
5. If there is a gap below the gauge, the slope is too steep for safe operation (See Figure 2 above).

15°/25% dashed line



WARNING! Slopes are a major factor related to tip-over and roll-over accidents which can result in severe injury or death.

Do not operate machine on slopes in excess of 15 degrees. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

ASSEMBLY

Note: This Operator's Manual covers several models. Tractor features may vary by model. Not all features in this manual are applicable to all tractor models and the tractor depicted may differ from yours.

Note: All references in this manual to the left or right side and front or back of the tractor are from the operating position only. Exceptions, if any, will be specified.

Preparation

Manually Move the Tractor

1. To engage the transmission bypass rods, pull the rod back (a) and into lower section of "J" slot. Repeat on opposite side. See Figure 1.
2. After moving tractor, reverse step one to disengage the bypass rods.
3. Remove the deck wash system nozzle adapter from the manual bag, store for future use.

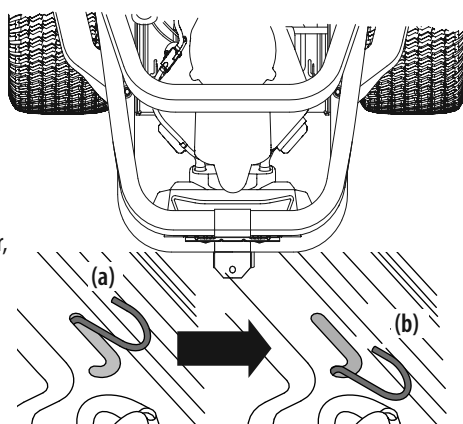


Figure 1

Install Hitch (If necessary)

1. Locate Hitch (a) and install on the rear of the frame using the two hex washer screws (b) provided. See Figure 2.

Note: Hitch and hex washer screws will be the hardware pack.

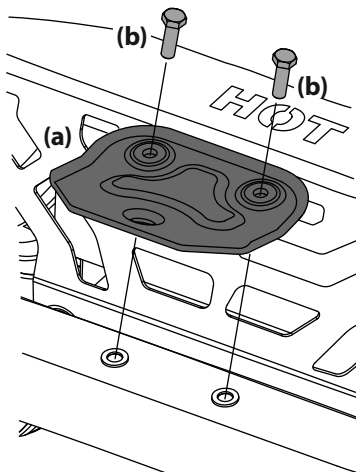


Figure 2

Reposition Upper Hoop (If necessary)

Upper hoop may be positioned down for shipping purposes:

1. Remove the two hex washer screws (a) partially installed on the frame. See Figure 3.
2. Rotate the upper hoop (b) into position. See Figure 3.
3. Secure hoop in place with the hex washer screws removed in step 1. Torque the hex washer screws to 159-239 in-lbs (18-27 N-m).

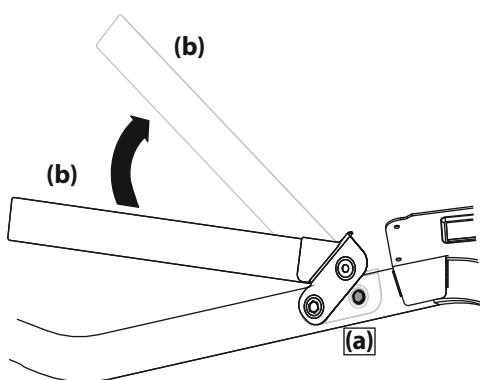


Figure 3

Install Operator's Seat

Knob Adjust or Lever Adjust

1. Cut any straps securing the seat assembly to the tractor. Remove all packing material.
Note: Be careful not to cut the seat wiring harness.
2. Install the seat onto the seat pan (a) using hardware provided.
 - a. For a Knob Adjust seat insert bolts (b) in the rear holes and lock washer (c) and knobs (d) in the front. Tighten securely. See Figure 4.
 - b. For a Lever Adjust seat use flange lock nuts (a) and flat washers (b). See Figure 5.

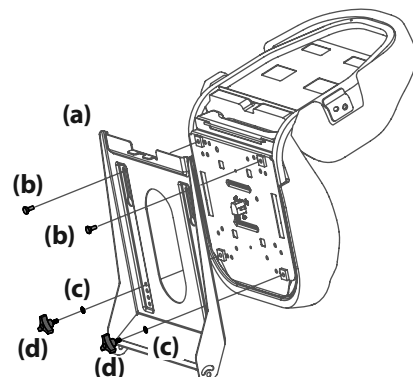


Figure 4

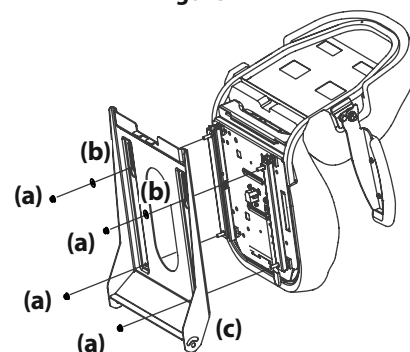


Figure 5

3. If necessary, securely connect the seat switch wiring harness (a) to the seat switch (b). See Figure 6. Secure excess wire away from pinch points before continuing.

Note: Tractor will not operate without the seat switch wiring harness connected.

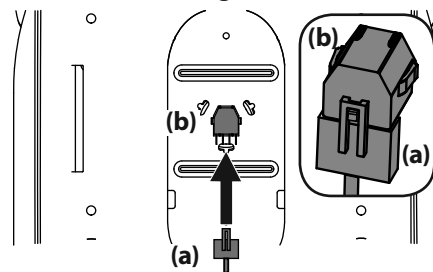


Figure 6

Position Lapbar Drive Control Levers

The lapbar drive control levers can be adjusted up/down and forward/backward for the operator's comfort. Three height positions are available and/or levers can be rotated forward or rearward using the knob.

To adjust the lapbar drive control lever height, proceed as follows:

1. Remove the two carriage screws (a) and two flange lock nuts (b) that secure the lapbar drive control lever (c) to the upper handle adjuster (d). See Figure 7.
2. Move the lapbar drive control lever into one of the three available heights and secure in place with the carriage screws and flange lock nuts. See Figure 7.

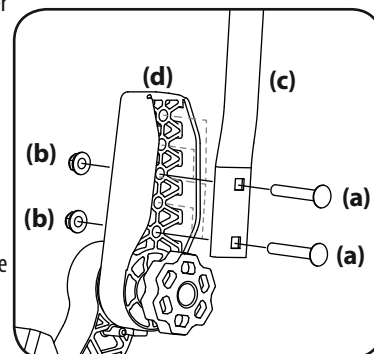


Figure 7

ASSEMBLY

To adjust the lapbar drive control levers forward/rearward, proceed as follows:

1. Rotate the knob (a) counter-clockwise to loosen the knob (a). See Figure 8.
2. Lift and rotate the lapbar drive control lever into the desired position.
3. Rotate the knob clockwise to secure the lapbar drive control lever into position. See Figure 8.

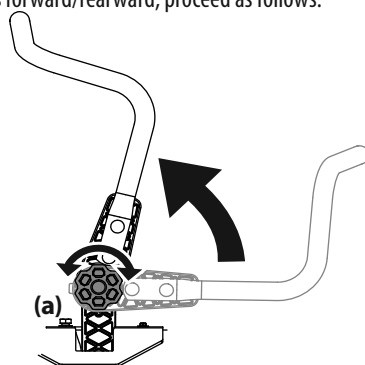


Figure 8

Lower Deck Discharge Chute Deflector

⚠ WARNING

Never operate the mower deck without the chute deflector installed and in the down position.

42" Deck Models

1. Remove the keys attached with a zip tie to the chute bracket.
2. Remove the flange lock nut and hex screw from the deck.
3. Place the chute deflector on the deck, be sure to insert the tabs on the chute deflector into the holes on the deck. See Figure 9.
4. Slide the chute deflector toward the rear of the tractor until the bolt hole in the chute deflector aligns with the hole in the deck. See Figure 9.
5. Secure the chute deflector in place with the flange lock nut and hex screw removed in step two. Tighten to 102-124 in-lbs (11.5-14 N-m). See Figure 9. Skip ahead to "Setting Front Gauge Wheels."

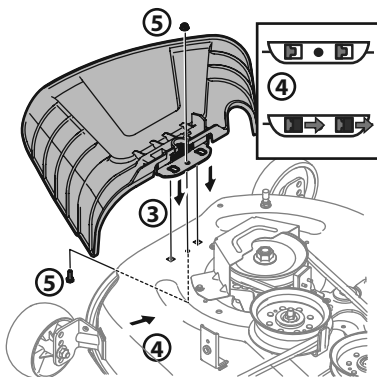


Figure 9

46"/50"/54"/60" Deck Models

1. The chute is shipped attached and with a stop bracket holding the chute upright. The stop brackets must be removed prior to operating the tractor.
2. Holding the chute deflector fully upward, remove the stop bracket. Lower the chute deflector and discard the stop bracket. See Figure 10.

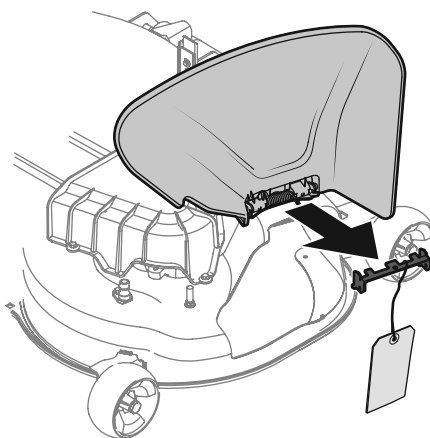


Figure 10

Setting Front Gauge Wheels (If equipped)

Note: The deck wheels are an anti-scalp feature of the deck and are not designed to support the weight of the cutting deck.

1. Move the tractor to a level surface, preferably pavement.
2. Check tire pressure, adjust, if necessary. See tire side wall for proper tire pressure.
3. Make sure the deck is level side-to-side and properly pitched. See the Product Care section for deck leveling information and instructions.
4. Place deck lift lever or knob in the desired mowing height position.
5. Check the wheels for contact or excessive clearance with the surface below.

Note: The deck wheels should have between 1/4" (6.35mm) and 1/2" (12.7mm) clearance above the ground.

6. Remove the lock nut (a) gauge wheel (b) and shoulder screw (c) from the deck. See Figure 11.
7. Insert the shoulder screw into one of four index holes on front gauge wheel bracket. Allow a 1/4-1/2" (6.35-12.7 mm) clearance between the ground and gauge wheel.
8. Note the index hole used on previously adjusted wheel. Repeat adjustment on opposite side to align both gauge wheels.

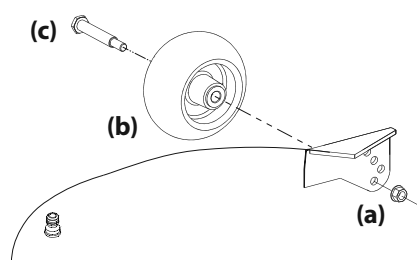


Figure 11

Note: Refer to Adjusting the Deck section of this manual for more detail.

Battery Information

⚠ WARNING

California **PROPOSITION 65 WARNING:** Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

⚠ WARNING

Should battery acid accidentally splatter into the eyes or onto the skin, rinse the affected area immediately with clean cold water. Seek prompt medical attention.

If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

NEVER connect (or disconnect) battery charger clips to the battery while the charger is turned on, as it can cause sparks.

Keep all sources of ignition (cigarettes, matches, lighters) away from the battery. The gas generated during charging can be combustible.

As a further precaution, only charge the battery in a well ventilated area. Always shield eyes and protect skin and clothing when working near batteries.

Batteries contain sulfuric acid and may emit explosive gases. Use extreme caution when handling batteries. Keep batteries out of the reach of children.

⚠ CAUTION

When attaching battery cables, always connect the **POSITIVE (Red)** wire to terminal first, followed by the **NEGATIVE (Black)** wire.

Note: The positive battery terminal is marked Pos. (+). The negative battery terminal is marked Neg. (-).

ASSEMBLY

Connecting Battery Cables

⚠ WARNING

Always connect the positive lead to the battery before connecting the negative lead. This will prevent sparking or possible injury from an electrical short caused by contacting the tractor body with tools being used to connect the cables.

For shipping reasons the factory may leave both battery cables disconnected from the terminals. To connect the battery cables, proceed as follows:

1. If present, remove the plastic cover from the positive battery terminal. Attach the red connector to the positive battery terminal (+) using the bolt (a) and hex nut (b). See Figure 12.
2. If present, remove the plastic cover from the negative battery terminal and attach the black cable to the negative battery terminal (–) with the bolt (a) and hex nut (b). See Figure 12.
3. Position the red rubber boot (c) over the positive battery terminal to help protect it from corrosion. See Figure 12.

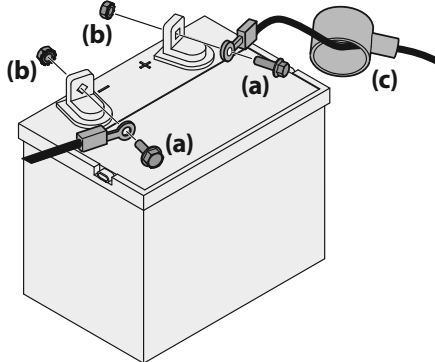


Figure 12

Note: If the battery is put into service after date shown on top/side of battery, charge the battery as instructed in the Product Care section, prior to operating.

Battery Maintenance

- The battery is filled with battery acid and then sealed at the factory. However, even a “maintenance free” battery requires some maintenance to ensure its proper life cycle.
- Spray the terminals and exposed wire with a battery terminal sealer, or coat the terminals with a thin coat of grease or petroleum jelly, to protect against corrosion.
- Always keep the battery cables and terminals clean and free of corrosion.
- Avoid tipping. Even a sealed battery will leak electrolyte when tipped.

Battery Storage

- When storing the tractor for extended periods, disconnect the negative battery cable. It is not necessary to remove the battery.
- All batteries discharge during storage. Keep the exterior of the battery clean, especially the top. A dirty battery will discharge more rapidly.
- The battery must be stored with a full charge. A discharged battery can freeze sooner than a charged battery. A fully charged battery will store longer in cold temperatures than hot.
- Recharge the battery before returning to service. Although the tractor may start, the engine charging system may not fully recharge the battery.

Battery Removal

⚠ WARNING

Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

The battery is located beneath the seat frame. To remove the battery:

1. Remove the hex washer screw (a) securing the battery hold-down bracket (b) to the frame. Then flip the battery hold-down bracket (b) up to free the battery. See Figure 13.
2. Remove the hex cap screw and sems nut securing the black negative battery lead to the negative battery post (marked NEG). Move the cable away from the negative battery post.
3. Remove the hex cap screw and sems nut securing the red positive battery lead to the positive battery post (marked POS).
4. Carefully lift the battery out of the tractor.
5. Install the battery by repeating the above steps in the reverse order.

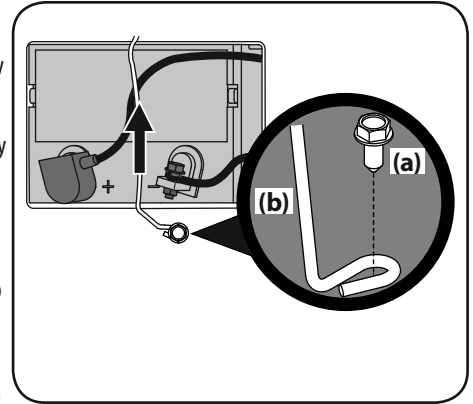


Figure 13

Charging the Battery

Test and, if necessary, recharge the battery after the tractor has been stored for a period of time.

- A voltmeter or load tester should read 12.6 volts (DC) or higher across the battery terminals. See Figure 14.
- Charge the battery with a 12-volt battery charger at a MAXIMUM rate of 10 amps.

Voltmeter Reading	State of Charge	Charging Time
12.7	100%	Full Charge
12.4	75%	90 Min.
12.2	50%	180 Min.
12.0	25%	280 Min.

Figure 14

Adjusting the Seat

Knob Adjust

1. Remove the knobs (a).
2. Slide the seat up or down into the desired position.
3. Replace the knobs into one of the four hole settings and tighten securely. See Figure 15.

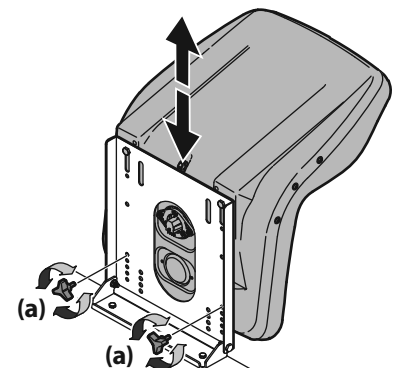


Figure 15

Lever Adjust

1. Push left and hold the seat adjustment lever to adjust the seat position.
2. Slide seat forward or rearward to desired position.
3. Release the adjustment lever. Ensure seat is locked into position before operation. See Figure 16.

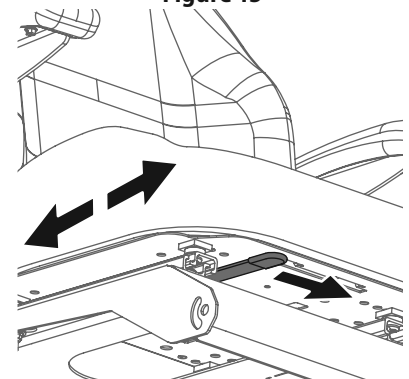


Figure 16

OPERATION

Note: This Operator's Manual covers several models. Tractor features may vary by model. Not all features in this manual are applicable to all tractor models and the tractor depicted may differ from yours.

Note: References to LEFT, RIGHT, FRONT, and REAR indicate that position on the tractor when facing forward while seated in the operator's seat.

① Lapbar Drive Control Levers

The RH (Right Hand) and LH (Left Hand) lapbar drive control levers are located on each side of the operator's seat. The hinged levers pivot outward to permit the operator to sit in the seat, or dismount. To start the tractor's engine, the lapbar drive control levers must be fully out and in park position. When the lapbar drive control levers are fully outward, the parking brake is engaged.

Each drive control lever controls the respective transmission. Consequently, these levers control all of the tractor's movement. Driving and steering using these control levers is quite different from a conventional tractor and will take practice to master. Refer to Practice Operation section for further instructions.

② Deck Height Index

If equipped with a deck lift handle:

Each height index notch corresponds to approximately a 1/2" (12.7mm) change in deck height. See 3 in Figure 15.

If equipped with a deck lift pedal and knob:

Each rotation represents a 1/4" (6.35 mm) change in deck height. Positions range from 1" (2.5 cm) to 4-1/2" (11.4 cm) at the highest point. See 4a and 4b in Figure 15.

③ Deck Lift Handle (If Equipped)

The deck lift handle is used to raise and lower the mower deck. To lower the deck, pull the deck lift handle to the right out of the index notch and push downward. To raise the deck, pull upward. Ensure handle is fully positioned into the height index notch when the desired height is attained.

④a Deck Lift Pedal (If Equipped)

The deck lift pedal is located on the front, right corner of the platform. The pedal is used in conjunction with the deck lift knob (if equipped) to raise and lower the mowing deck. Push forward on the deck lift pedal, rotate the deck lift knob to the desired height and release the deck lift pedal.

④b Deck Lift Knob (If Equipped)

The deck lift knob is used in conjunction with the deck lift pedal (if equipped) to raise and lower the mowing deck. Push forward on the deck lift pedal, rotate the deck lift knob to the desired height and release the deck lift pedal.

⑤ Power Take-Off (PTO)

Electric PTO (If equipped)

The PTO switch operates the electric PTO clutch mounted on the bottom of the engine crankshaft. Pull the switch knob upward to engage the PTO clutch, or push the knob downward to disengage the clutch.

The PTO switch must be in the "OFF" position when starting the engine.

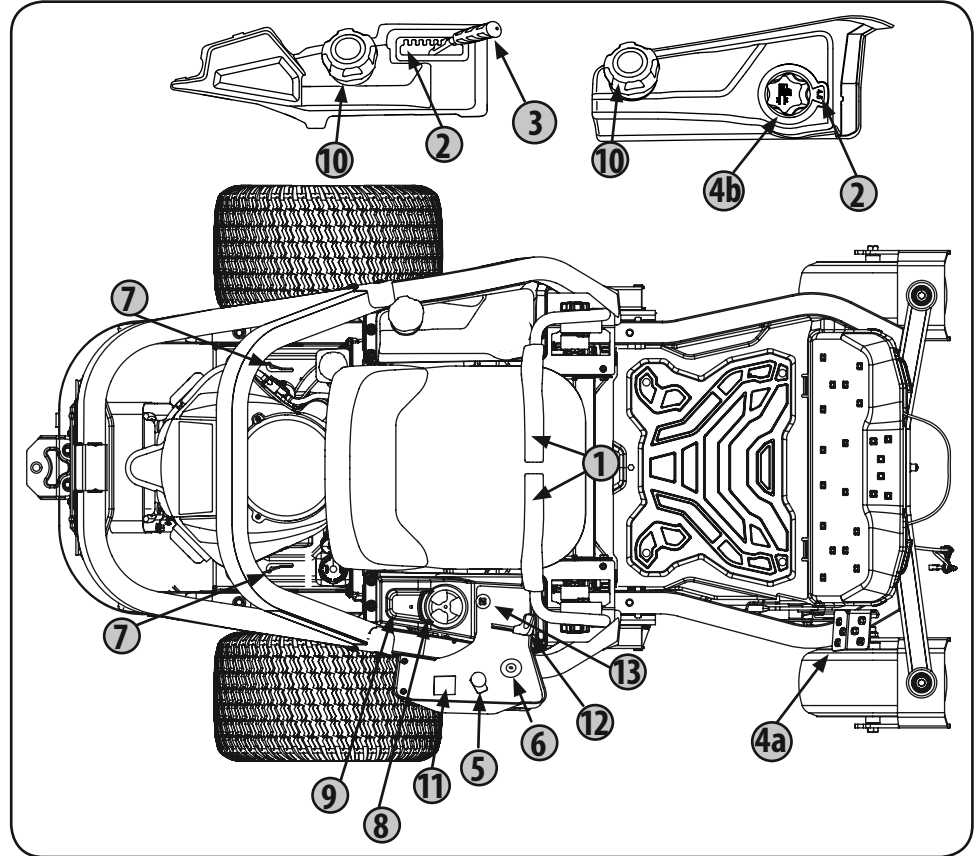
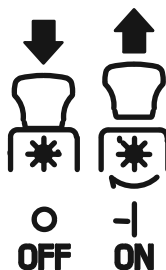


Figure 15

⑥ Ignition Switch

⚠ WARNING

Never leave a running machine unattended. Always disengage PTO, set parking brake, stop engine and remove key to prevent unintended starting.

The ignition switch has three positions:

STOP — The engine and electrical system is turned off.

RUN — The riding mower electrical system is energized.

START — The starter motor will turn over the engine. Release the key immediately when the engine starts.

Note: To prevent accidental starting and/or battery discharge, remove key from the ignition switch when tractor is not in use.

⑦ Transmission Bypass Rods

The transmission bypass rods (one for each RH and LH transmission) are located on the rear of the tractor, next to the engine. When engaged, the two rods open a bypass within the hydrostatic transmissions, which allows the tractor to be pushed short distances by hand. Refer to the Assembly section for additional instructions.

⚠ CAUTION

Never tow your tractor. Towing the tractor with the rear wheels on the ground may cause severe damage to the transmissions.

OPERATION

⑧ Cup Holder

The cup holder is located on the top of the console.

⑨ Storage Tray

The storage tray is located to the rear of the console.

⑩ Fuel Tank Cap

Turn the fill cap at least two clicks counter clockwise and pull upward to remove. The fuel cap is tethered to the tractor to prevent its loss. Do not attempt to remove the cap from the tractor. Fill tank to $\frac{1}{2}$ " (12.7 mm) below the bottom of the filler neck, allowing some space in the tank for fuel expansion. Do not overfill the tank.

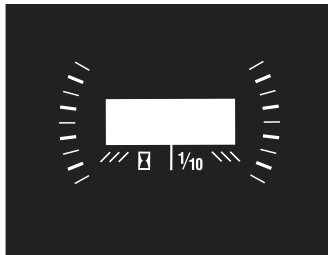
Push the cap downward on the fuel tank fill neck and turn at least two clicks clockwise to tighten. Always re-install the fuel cap tightly onto the fuel tank after removing.

⚠ WARNING

Never fill the fuel tank when the engine is running. If the engine is hot from recently running, allow to cool for at least five minutes before refueling. Highly flammable gasoline could splash onto the engine and cause a fire.

⑪ Hour Meter & LCD Service Minder (If equipped)

The LCD service minder will remind the operator of maintenance intervals for changing the engine oil, air filter service, low engine and low battery warnings. When the key is rotated out of the STOP position but is not in the START position, the LCD service minder & hour meter will briefly display the battery voltage, followed by the tractor's accumulated hours.



Note: When the ignition key is out of the STOP position the hourglass  symbol is illuminated/blinks to indicate it is recording the hours of tractor operation, regardless of whether the engine has been started.

Change Oil

The LCD screen will alternate the letters "CHG", followed by "OIL", followed by "SOON", followed by the meter's accumulated time. "CHG/OIL/SOON/TIME" will alternate on the display for 7 minutes after the meter reaches 50 hours. This oil service minder interval will occur every 50 hours. Before the interval expires, change the engine oil as instructed in the Engine Operator's Manual

Low Oil

Note: The low oil pressure function only works if the engine is equipped with an oil pressure switch.

The LCD screen will alternate the letters "LO" followed by "OIL", followed by the meter's accumulated time, which indicates the engine has low oil pressure. This is common when starting an engine. The indicator will remain active until the engine sufficiently builds pressure after starting. If it remains on with the engine at full speed and after a few minutes of operation, stop the tractor immediately and check the engine oil level and add as instructed in the Engine Operator's Manual. If the oil level is correct and the indicator persists, contact an authorized service dealer.

Low Battery

At startup, the battery voltage will briefly display, then changes to accumulated hours. The letters "LO" followed by the letters "BATT" will display, followed by the meter's accumulated time. "LO/BATT/TIME" is displayed on the LCD when the voltage drops below 11.5 volts. When this occurs, the battery is in need of a charge or the engine's charging system is not generating sufficient amperage. Charge the battery as instructed in the Product Care section of this manual or have the charging system checked by your local service dealer.

Air Filter Service

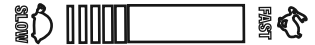
The LCD screen will display the letters "CLN" followed by the letters "AIR", followed by "FILT", followed by the meter's accumulated time. "CLN/AIR/FILT/TIME" will alternate on the display for 7 minutes after the meter reaches 25 hours. This air filter service minder time interval will be every 25 hours. On intervals that are common with oil service, the oil message will be displayed first followed by the air filter message.

⑫ Throttle/Choke Control Lever or Throttle Control Lever

Note: When set in a given position, a uniform engine speed will be maintained.

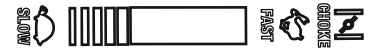
Throttle Control Lever (If equipped)

Push the throttle control lever forward to increase the engine speed. The tractor is designed to operate with the throttle control lever at full throttle (FAST) when the tractor is being driven and the tractor deck is engaged. Pull the throttle control lever rearward to decrease the engine speed.



Throttle/Choke Control Lever (If equipped)

Push the throttle/choke control lever forward to increase the engine speed. The tractor is designed to operate with the throttle/choke control lever at full throttle (FAST) when the tractor is being driven and the mower deck is engaged. Pull the throttle/choke control lever rearward to decrease the engine speed. When starting the engine, push the control lever fully forward into the "CHOKE" position. After starting and warming the engine, move the control handle rearward until you feel it move past the choke detent. Throttle is not meant to control unit speed, throttle should remain in high speed while operating blades.



⑬ Choke Control (If equipped)

The choke control determines the position of the engine choke. Pull the knob out to choke the engine; push the knob in to open the choke.



Multi-Tool (If equipped)

The multi-tool (a) is located on the front of the right console. The multi-tool (a) can be used as a deck lift lockout, to remove the footpan bolt, adjust the height of the lapbar drive control levers, drive control lever stop adjustment and can be used as a removal tool with the $\frac{1}{2}$ " socket end. See the Product Care section for more information on multi-tool (a) usage. See Figure 16.

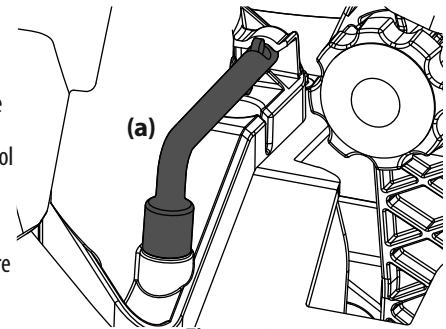


Figure 16

Headlights (Not shown/If equipped)

The headlights are located on the front of the frame. The headlights are ON whenever the ignition key is rotated out of the STOP position and OFF when the ignition key is moved to the STOP position.

Seat Adjustment Lever (Not shown/If equipped)

The seat adjustment lever is located under the seat. The seat adjustment lever allows for adjustment forward or backward of the operator's seat. Refer to the Assembly & Set-Up section for instructions on adjusting the seat position.

Note: If your tractor is not equipped with a seat adjustment lever, it can be adjusted using the knobs on the underside of the seat. Refer to the Assembly & Set-Up section for instruction on adjusting the seat.

OPERATION

Operation

Before Operating Your Tractor

- Before operation, refer to Maintenance Schedule chart located in this manual for regularly scheduled service items.
- This engine is certified to operate only on clean, fresh, unleaded gasoline. Fill only with clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher.
- Do not use gasoline left over from the previous season, to minimize gum deposits in the fuel system.
- Gasohol (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) is an approved fuel. Other gasoline/alcohol blends are not approved.
- Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blends (up to a maximum of 15% MTBE by volume) are approved fuels. Other gasoline/ether blends are not approved.

Safety Interlock System

⚠ WARNING

Do not operate the tractor if the safety interlock system is malfunctioning. This system was designed for your safety and protection.

This tractor is equipped with a safety interlock system for the protection of the operator. If the interlock system should ever malfunction, do not operate the tractor. Contact an authorized service dealer.

- The safety interlock system prevents the engine from cranking or starting unless the parking brake is engaged, and the PTO lever is in the DISENGAGED (OFF) position.
- The engine will automatically shut OFF if the operator leaves the seat before engaging the parking brake.
- The engine will automatically shut OFF if the operator leaves the tractor's seat with the PTO switch in the ENGAGED (ON) position, regardless of whether the parking brake is engaged.

Checking the Safety Interlock Circuits

Periodically check the safety interlock circuits to ensure they are working properly. If a safety circuit is not working as designed, contact your Service dealer to have the tractor inspected. DO NOT operate the tractor if any safety circuit is not functioning properly. To check the safety circuits, proceed as follows:

1. Pull the PTO upward to the ENGAGED (ON) position. Momentarily turn the ignition switch to the START position; the engine should not crank.
2. With the tractor running move both lapbar drive control levers fully inward in the neutral position; then lift upward from the operator's seat. The engine should stop.
3. With both lapbar drive control levers fully outward in the parking brake engaged position, engage the PTO. Lift upward from the operator's seat; the engine should stop.

Starting the Engine

⚠ CAUTION

The operator should be sitting in the tractor seat when starting the engine.

1. Operator should be sitting in the tractor seat with the lapbar drive control levers fully out and in the park position. See Figure 17. Refer to Practice Operation for further instructions.
2. Make certain the PTO is in the "OFF" position. Move the choke control or throttle/choke control into the full choke position. Move the throttle control to midway between its slow and fast positions on models with a separate choke control.

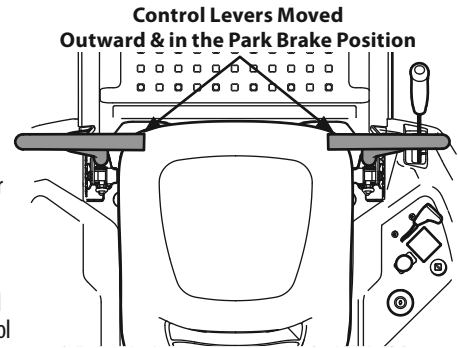


Figure 17

Note: If the engine is warmed up, it may not be necessary to choke the engine.

3. Turn the key clockwise to the START position. After the engine starts, release the key. It will return to the RUN position.

⚠ CAUTION

Do NOT hold the key in the START position for longer than ten seconds at a time. Doing so may cause damage to your engine's electric starter.

4. As the engine warms up, gradually pull the throttle/choke control lever rearward past the choke detent position or slowly disengage the choke on models with a separate choke. Do not use the choke position to enrich the fuel mixture, except as necessary to start the engine.
5. Allow the engine to run for a few minutes at mid-throttle before putting the engine under load.
6. Observe the hour meter/indicator panel. If the battery indicator light or oil pressure light come on, immediately stop the engine. Have the tractor inspected by your authorized service dealer.

Cold Weather Starting

When starting the engine at temperatures near or below freezing, ensure the correct viscosity motor oil is used in the engine and the battery is fully charged. Start the engine as follows:

1. Be sure the battery is in good condition. A warm battery has much more starting capacity than a cold battery.
2. Use fresh winter grade fuel. Winter grade gasoline has higher volatility to improve starting. Do not use gasoline left over from summer.
3. Follow the previous instruction for Starting the Engine.

Using Jumper Cables To Start Engine

⚠ WARNING

Batteries contain sulfuric acid and produce explosive gasses. Make certain the area is well ventilated, wear gloves and eye protection, and avoid sparks or flames near the battery.

If the battery charge is not sufficient to crank the engine, recharge the battery. If a battery charger is unavailable and the tractor must be started, the aid of a booster battery will be necessary. Connect the booster battery as follows:

1. Connect the end of one cable to the disabled tractor battery's positive terminal; then connect the other end of that cable to the booster battery's positive terminal.

OPERATION

2. Connect one end of the other cable to the booster battery's negative terminal; then connect the other end of that cable to the frame of the disabled tractor, as far from the battery as possible.
3. Start the disabled tractor following the normal starting instructions previously provided; then disconnect the jumper cables in the exact reverse order of their connection.
4. Have the tractor's electrical system checked and repaired as soon as possible to eliminate the need for jump starting.

Stopping the Engine

1. Disengage the PTO.
2. Move the RH and LH lapbar drive control levers fully outward into the Park Brake engaged position.
3. Move the throttle control to midway between the slow and fast positions.
4. Turn the key to the STOP position and remove the key from the ignition module.

Note: Always remove the key from the ignition module to prevent accidental starting or battery discharge if the equipment is left unattended.

Practice Operation (Initial Use)

Operating a zero-turn tractor is not like operating a conventional type riding tractor. Although and because a zero turn tractor is more maneuverable, getting used to operating the lapbar drive control levers takes some practice.

It is strongly recommended that you locate a reasonably large, level and open "practice area" where there are no obstructions, pedestrians, or animals. You should practice operating the tractor for a minimum of 30 minutes.

Carefully move (or have moved) the tractor to the practice area. When performing the practice session, the PTO should not be engaged. While practicing, operate the tractor at approximately $\frac{1}{2}$ - $\frac{3}{4}$ throttle and at less than full speed in both forward and reverse.

Carefully practice maneuvering the tractor using the instructions in the following section "Driving the Tractor." Practice until you are confident that you can safely operate the tractor.

Driving the Tractor

⚠ WARNING

Keep all movement of the lapbar drive control levers slow and smooth. Abrupt movement of the control levers can affect the stability of the tractor and could cause the tractor to flip over, which may result in serious injury or death to the operator.

1. Adjust the operator's seat to the most comfortable position that allows you to operate the controls. See seat adjustment in the Assembly & Set-Up section.
2. Move the RH and LH lapbar drive control levers inward in the neutral position which also disengages the parking brake. Refer to Figure 18.

Note: Lapbar drive control levers must be moved fully inward before pushing forward or backward to ensure brakes are fully disengaged. Parking the tractor on uneven terrain or a hill may cause the brakes to bind and not release fully. In this case the tractor will not drive when the lapbar drive control levers are moved. If this happens, move the lapbar drive control lever in the opposite direction slightly to take the load off the brakes and allow them to release fully.

Note: If the lap bar drive control levers are not even in the neutral position, refer to Maintenance & Adjustments for instructions to adjust the lapbar drive control levers so that they are even.

3. Move the throttle to the full throttle position.

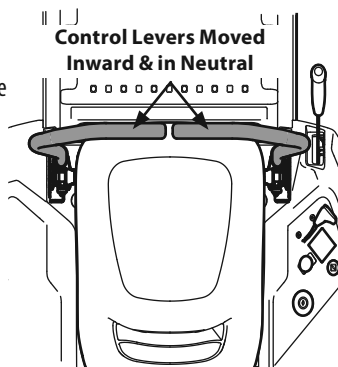


Figure 18

⚠ WARNING

Always maintain a firm grip on the control levers. DO NOT release the control levers to slow or stop the tractor; move levers to neutral position using your hands.

4. To drive the tractor, firmly grasp the respective lapbar drive control levers with your right and left hands and continue with Driving the Tractor Forward in the next section.

Driving the Tractor Forward

1. Slowly and evenly move both lapbar drive control levers forward. The tractor will start to move forward. See Figure 19.
2. As the lapbar drive control levers are pushed farther forward the speed of the tractor will increase.
3. To slow the tractor move the drive controls lever rearward to attain the desired speed, or move the lapbar drive control levers to the neutral position to stop the tractor.

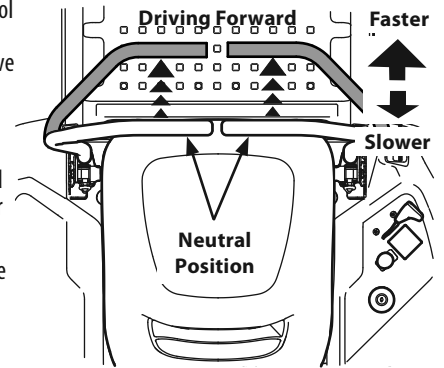


Figure 19

Turning the Tractor While Driving Forward

⚠ WARNING

Sharp turns can affect control of the tractor. ALWAYS slow the tractor before making sharp turns.

To turn the tractor while driving forward, move the lapbar drive control levers as necessary so that one drive control lever is rearward of the other. The tractor will turn in the direction of the rearward drive control lever.

1. To turn to the left, move the left drive control lever rearward of the right drive control lever. See Figure 20.
2. To turn to the right, move the right drive control lever rearward of the left lever. See Figure 21.
3. The greater the distance between the two levers, the sharper the tractor will turn.
4. To execute a "pivot turn," move the turn side drive control lever to the neutral position, while moving the other control lever forward.

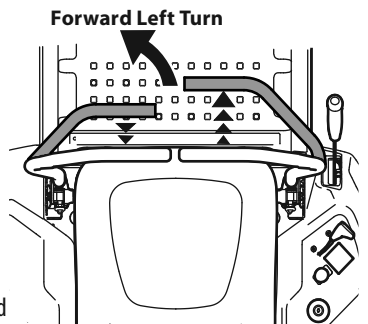


Figure 20

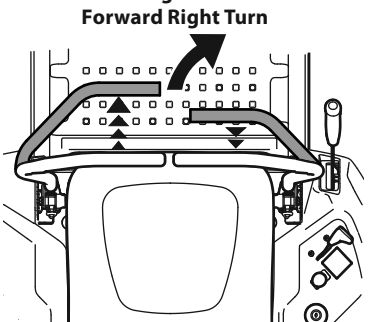


Figure 21

Note: Making a "pivot turn" on grass will greatly increase the potential for defacement of the turf.

OPERATION

Driving the Tractor In Reverse

⚠ WARNING

Always look behind and down on both sides of the tractor before backing up. Always look behind while traveling in the reverse direction. Mowing in reverse is not recommended.

1. Slowly and evenly move both lapbar drive control levers rearward. The tractor will start to move in the reverse direction. See Figure 22.
2. As the lapbar drive control levers are pushed farther rearward the speed of the tractor will increase.
3. To slow the tractor move the lapbar drive control levers forward to attain the desired speed, or move the lapbar drive control levers to the neutral position to stop the tractor.

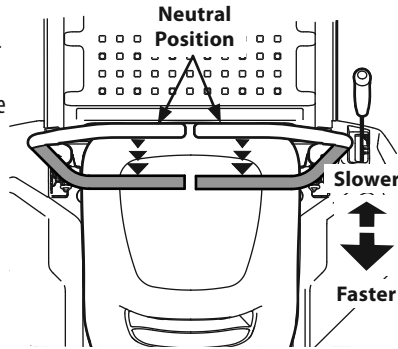


Figure 22

Turning While Driving Rearward

To turn the tractor while driving rearward, move the lapbar drive control levers as necessary so that one drive control lever is forward of the other. The tractor will turn in the direction of the forward lapbar drive control lever.

1. To turn to the left while traveling in reverse, move the left drive control lever forward of the right drive control lever. See Figure 23.



Figure 23

2. To turn to the right while traveling in reverse, move the right drive control lever forward of the left drive control lever. See Figure 24.

The greater the distance between the two lapbar drive control levers, the sharper the tractor will turn.

3. To execute a "pivot turn," move the turn side drive control lever to the neutral position, while moving the other drive control lever rearward.

Note: Making a "pivot turn" on grass will greatly increase the potential for defacement of the turf.

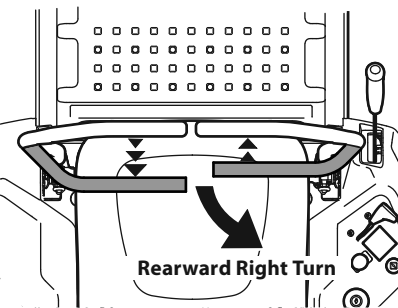


Figure 24

Executing a Zero Turn

1. Stop the forward or reverse motion of the tractor by moving the two lapbar drive control levers to neutral.
2. To turn clockwise, move the left lapbar drive control lever forward while simultaneously moving the right lapbar drive control lever rearward. See Figure 25.
3. To turn counterclockwise, move the lapbar right drive control lever forward while simultaneously moving the left lapbar drive control lever rearward. See Figure 26.

Clockwise Zero Turn

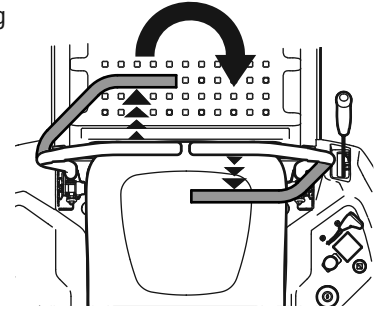


Figure 25

Counterclockwise Zero Turn

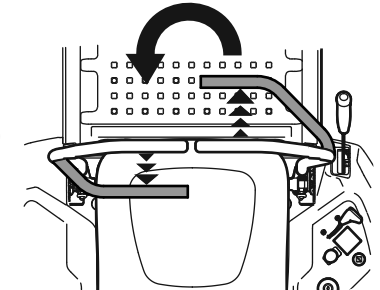


Figure 26

Stopping the Tractor

1. Move both lapbar drive control levers to the neutral position to stop the motion of the tractor.
2. Push the PTO downward to the OFF position.
3. Use the deck lift knob/handle to raise the deck to its highest position.
4. If dismounting the tractor, move the lapbar drive control levers fully outward in the neutral position which also engages the parking brake, move the throttle to the FAST position, turn the key to STOP and remove the from the ignition module.

⚠ WARNING

Do not leave the seat of the tractor without disengaging the PTO and moving lapbar drive control levers fully outward into the Park Brake engaged position. If leaving the tractor unattended, turn the ignition key to the STOP position and remove key.

Engaging the PTO

Engaging the PTO transfers power to the cutting deck or other (separately available) attachments. To engage the PTO:

1. Move the throttle to the FAST position.
2. Pull the PTO switch up/out into the ENGAGED (ON) position.

Note: When operating the tractor be certain that the throttle is always in the FAST position. Operating with the throttle at less than full throttle may lead to premature battery wear and a poor quality cut.

3. To disengage the PTO, push the PTO switch down/in to the DISENGAGED (OFF) position.

OPERATION

Mowing

WARNING

To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children and pets at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.

WARNING

Make certain the area to be mowed is free of debris, sticks, stones, wire or other objects that can be thrown by the rotating blades.

Note: Do not engage the mower deck when lowered in grass. Premature wear and possible failure of the 'V' belt and PTO clutch will result. Fully raise the deck or move to a non grassy area before engaging the mower deck.

- Mow across slopes, not up and down. If mowing a slope, start at bottom and work upward to ensure turns are made uphill.
- Do not mow at high ground speed, especially if a mulch kit or grass collector is installed.
- Do not cut the grass too short. Short grass is prone to weed growth and yellows quickly in dry weather.
- Always operate the tractor with the throttle in the FAST position while mowing.
- On the first pass pick a point on the opposite side of the area to be mowed. Follow the point to maintain a straight line
- Engage the PTO and move the throttle control or throttle/choke control to the FAST position.
- Lower the mower deck to the desired height setting.
- For best results it is recommended that the first two laps be cut with the discharge thrown towards the center. After the first two laps, reverse the direction to throw the discharge to the outside for the balance of cutting. This will give a better appearance to the lawn.
- Slowly and evenly push the RH and LH lapbar drive control levers forward to move the tractor forward, and keep the tractor headed directly toward the alignment point.

Note: The speed of the tractor will affect the quality of the mower cut. Mowing at full speed will adversely affect the cut quality. Control the ground speed with the lapbar drive control levers.

- Your tractor is designed to cut normal residential grass of a height no more than 10" (25cm). Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the tractor.
- Do NOT attempt to mow heavy brush and weeds or extremely tall grass. Your tractor is designed to mow lawns, NOT clear brush.
- Keep the blades sharp and replace the blades when worn.
- When approaching the other end of the strip, slow down or stop before turning. A U-turn is recommended unless a pivot or zero turn is required.
- Align the mower with an edge of the mowed strip and overlap approximately 3" (7.6 cm).
- Direct the tractor on each subsequent strip to align with a previously cut strip.
- To prevent rutting or grooving of the turf, if possible, change the direction that the strips are mowed by approximately 45° for the next and each subsequent mowing.

When stopping the tractor for any reason while on a grass surface, always:

- Move the RH and LH lapbar drive control levers fully outward into the Park Brake engaged position.
- Shut engine off and remove the key.

- Doing so will minimize the possibility of having your lawn "browned" by hot exhaust from your tractor's running engine.

SERVICE AND MAINTENANCE

MAINTENANCE SCHEDULE

WARNING

Before performing any type of maintenance/service, disengage all controls and stop the engine. Wait until all moving parts have come to a complete stop. Disconnect spark plug wire and ground it against the engine to prevent unintended starting. Always wear safety glasses during operation or while performing any adjustments or repairs.

Follow the maintenance schedule given below. This chart describes service guidelines only. Use the Service Log column to keep track of completed maintenance tasks.

Refer to the Engine Operator's Manual for engine maintenance items listed in the table below.

	Before Each use	After First 5 Hours	Every 10 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours	Every 200 Hours	Prior to Storing	See Engine Manual
Check/Clean Engine Intake Screens & Cooling Fans #	✓							✓	
Check/Clean Exhaust Manifold, Muffler Pipe & Muffler Shields #	✓							✓	
Check/Clean Top & Underside of Deck, Under and Around Spindle Covers & Belt Area #	✓							✓	
Check/Clean Around Fuses, Wiring and Wiring Harnesses #	✓							✓	
Check/Clean Around Transmission, Axle and Fans #	✓							✓	
Check/Add/Change Transmission Fluid as needed							✓		
Check Air Filter for Dirty, Loose or Damaged Parts	✓								
Check Engine Oil Level	✓								
Clean Battery Terminals			✓					✓	
Grease All Lubrication Points			✓					✓	
Check Engine Intake Screen/Clean as Needed			✓					✓	
Check Blades/Sharpen or Replace as Needed			✓					✓	
Check Tire Pressure			✓					✓	
Check/Clean Underside of Deck			✓						
Check Safety Interlock System			✓					✓	
Check Mower Blade Stop Time			✓					✓	
Inspect & Lube Deck Wheels				✓				✓	
Check Deck Level/Pitch				✓				✓	
Check Belts & Pulleys for Damage/Wear					✓				
Check That All Hardware is in Place & Secure						✓			
Check Engine Mounting Bolt Torque (Tighten to 325-450 in.-lbs. (37-50 N-m))		✓			✓			✓	✓
Check Blade Mount Nut Torque (Tighten to 70-90 ft. lbs. (95-122 N-m))		✓			✓			✓	
Check Spark Plug Condition & Gap						✓		✓	✓
Engine Break-In Oil Change		✓							✓
Change Engine Oil					✓			✓	✓
Check Fuel System (Lines, Tank, Cap, Fittings)		✓			✓			✓	✓
Check Spark Arrestor		✓			✓			✓	✓
Replace Oil Filter					✓			✓	✓
Clean or Change Air Filter					✓				✓
Replace Fuel Filter					✓				✓
Have Valve Lash Checked & Adjusted *									✓

* -- Have this item performed by an authorized service dealer

#-- Perform more often in dry conditions and/or when mulching

SERVICE AND MAINTENANCE

Note: This Operator's Manual covers several models. Tractor features may vary by model. Not all features in this manual are applicable to all tractor models and the tractor depicted may differ from yours.

Post-Operation Tractor Care

After each operation of the tractor, to ensure safe operating conditions refer to Maintenance Schedule chart in this manual for proper tractor care.

⚠ WARNING

Failure to follow these recommendations may result in serious injury to yourself or others and may cause damage to the tractor.

Cleaning the Underside of the Deck

Deck Wash System

Your tractor's deck is equipped with a water port on its surface as part of its deck wash system.

Use the deck wash system to rinse grass clippings from the deck's underside and prevent the buildup of corrosive chemicals. Complete the following steps AFTER EACH MOWING:

1. Attach the nozzle adapter to a standard garden hose connected to a water supply.
2. Move the tractor to an area within reach of the hose where the dispersal of wet grass clippings is acceptable. Disengage the PTO, engage the parking brake and stop the engine.
3. Pull back the lock collar (a) of the nozzle adapter (b) and push the nozzle adapter onto the deck wash nozzle (c). Release the lock collar to lock the nozzle adapter on the deck wash nozzle. See Figure 27.
4. Turn on the water supply.
5. From the tractor operator's seat, start the engine and engage the PTO. Allow to run as needed. Disengage the PTO and stop the engine.
6. Turn off the water supply.
7. Pull back the lock collar of the nozzle adapter to disconnect the nozzle adapter from the deck wash nozzle.

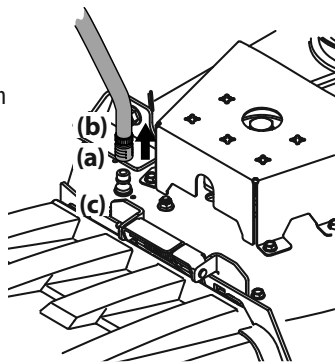


Figure 27

Cleaning the Tractor

⚠ WARNING

If the tractor has been recently run, the engine, muffler and surrounding metal surfaces will be very hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

Your tractor should be cleaned after each use and under certain conditions, i.e. dry conditions and/or mulching situations, additional cleaning may be necessary.

One of the best ways to keep your tractor running efficiently and to reduce fire risk is to regularly remove debris buildup from the tractor. Follow the recommendations below and contact your authorized dealer with any questions.

- Allow the machine to cool for at least five minutes in an open area before cleaning.

Note: Using a pressure washer or garden hose is not recommended for cleaning your tractor other than to clean the underside of the deck. It may cause damage to electrical components, spindles, pulleys, bearings or the engine. The use of water will result in shortened life and reduce serviceability.

- Keep both sides of transmission cooling slots, exhaust manifold, around fuses, all wiring and harnesses, muffler pipe, muffler shield, engine intake screens and cooling fins, etc clear of grass clippings and leaves. See Figure 28.

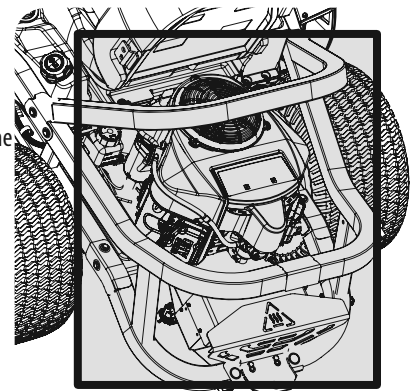


Figure 28

- Clean the top of the mower deck, under the spindle covers and belt area. See Figure 29.

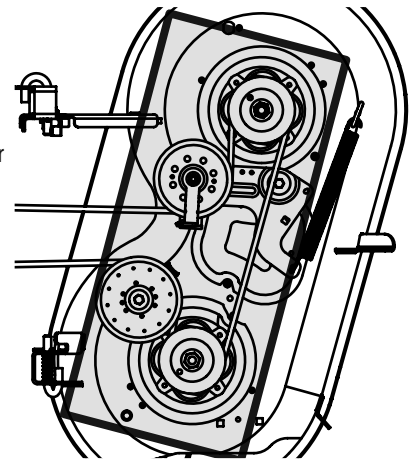


Figure 29

- Clean around and near the transmission, axle and the fan area. See 30.
- Debris can accumulate anywhere on the tractor, especially on horizontal surfaces. Additional cleaning may be necessary when mowing in dry conditions or when mulching.

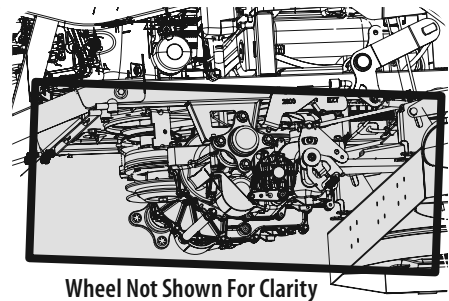


Figure 30

- Fuel leaks/spills, oil leaks/spills and excess lubrication can also become collections sites for debris. Immediate repair and cleaning up oil or fuel spills can help reduce fire hazards.
- In addition to cleaning the tractor before operating and storing, do not attempt to mow unusually tall grass (10" (25.4 cm) or higher), dry grass (e.g., pasture) or piles of dry leaves. Dry grass or leaves may contact the engine exhaust and/or build up on the mower deck presenting a potential fire hazard.

SERVICE AND MAINTENANCE

Storing the Tractor

- Allow the machine to cool in an open area for at least five minutes before storing.
- Do not park the tractor near any flammable materials (wood, cloth or chemicals) or any open flames or other potential source of ignition (furnace, water heater or any other type of heater).
- Remove all combustible materials from the tractor before storing. Empty cargo boxes, grass catchers or containers.
- Always shut off fuel flow when storing or transporting if tractor is equipped with a fuel shutoff.
- Check the fuel system (lines, tank, cap and fittings) per the maintenance schedule for cracks or leaks. Repair and clean as necessary.

Maintenance

Removing the Floor Panel (If equipped)

⚠ WARNING

Do not operate tractor with floor panel removed.

On some models, the floor panel can be removed for maintenance, service and cleaning. To remove the floor panel:

1. Using the multi-tool (if equipped) or a 1/2" socket, remove the hex screw (a) that secures the floor panel in place. See 1 in Figure 31.1.
2. Carefully lift the rear of the floor panel. See 2 in Figure 31.
3. Slide the floor panel rearward to free the front of the floor panel. See 3 in Figure 31.
4. Lift it off the tractor. See 4 in Figure 31.
5. To place the floor panel back on the tractor, carefully put the floor panel back in place and reinstall the hex screw removed in step 1. 1. Using the multi-tool (if equipped) or a 1/2" socket, remove the hex screw (a) that secures the floor panel in place. See 1 in Figure 31.1. Torque to 108-132 in-lbs (12-15 N-m).

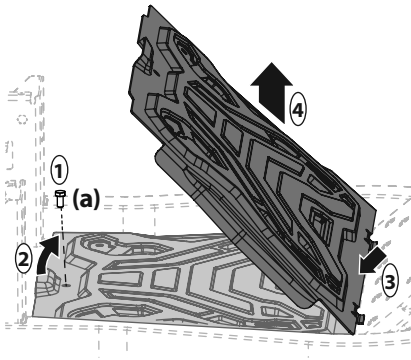


Figure 31

Engine

⚠ WARNING

Allow machine to cool in an open area for at least five minutes before storing or refueling.

Refer to the Engine Operator's Manual for all engine maintenance procedures and instructions.

Note: Maintenance, repair, or replacement of the emission control devices and systems which are being done at owner's expense may be performed by any engine repair establishment or individual. Warranty repairs must be performed by an authorized dealer.

Changing the Engine Oil

⚠ WARNING

If the tractor has been recently run, the engine, muffler and surrounding metal surfaces will be very hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

Note: The oil filter should be changed at every oil change interval.

To complete an oil change, proceed as follows:

1. Locate the oil drain hose (a) on the side of the engine.
2. Place an appropriate oil collection container with at least a 2.5 quart (2.37 liter) capacity below the opening of the oil drain hose, to collect the used oil. Remove the oil fill cap/dipstick (b) from the oil fill tube.
3. While holding the free end of the oil drain hose over the oil collection container, unscrew the square head hose plug (c) from the end of the oil drain hose. See Figure 32. Drain the engine oil into the collection container.
4. After draining the oil, wipe any residual oil from the oil drain hose. Thread the square head hose plug into the oil drain hose fitting and tighten the square head hose plug to 16 ft.-lbs. (22 N-m).
5. Remove the oil filter (d) and drain into the collection container.
6. Replace the oil filter (d), and refill the engine with new oil as instructed in the Engine Operator's Manual.

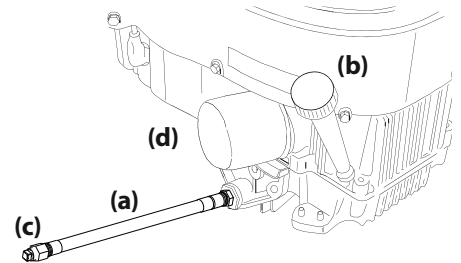


Figure 32

Note: Place an absorbent towel beneath the oil filter to keep oil off the clutch.

Note: Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.

Note: Maintenance, repair, or replacement of the emission control devices and systems which are being done at owner's expense may be performed by any engine repair establishment or individual. Warranty repairs must be performed by an authorized dealer.

Lubrication

⚠ WARNING

Before lubricating, repairing, or inspecting, always disengage PTO, set parking brake, stop engine and remove key to prevent unintended starting.

- Using a quality lubricating oil, lubricate all lubrication points. Refer to maintenance schedule chart located in this manual for proper service intervals.

Spark Arrestor Maintenance (If Equipped)

Spark arrestor assemblies must be inspected and cleaned periodically (see the service interval chart in this manual). Visually inspect the screen for tears, broken wires or loose welds. Replace the spark arrestor assembly if any of these conditions exist. If the screen is in good condition, clean the screen by brushing away loose dirt or carbon particles.

Tires

Keep the tires inflated to the recommended pressures. Improper inflation will shorten the tire service life. See the tire side wall for proper inflation pressures. Refer to maintenance schedule chart located in this manual for proper service intervals.

Observe the following guidelines:

- Do not inflate a tire above the maximum pressure shown on the sidewall of the tire.
- Do not reinflate a tire that has been run flat or seriously under inflated. Have it inspected and serviced by a qualified tire mechanic.

SERVICE AND MAINTENANCE

Hydrostatic Transmission

Your zero turn tractor is equipped with two hydrostatic pumps/transaxles. Some models are equipped with a transmission oil expansion reservoir. Under normal operating conditions, the oil level in the expansion reservoirs does not need to be checked and no additional oil is needed.

Checking & Adding Transmission Oil

⚠ WARNING

Check the oil level **ONLY** before starting the tractor when the transmission oil is fully cooled.

1. Clean the reservoir cap and the area around the cap to prevent debris from contaminating the transmission oil. See Figure 33.
2. Turn the reservoir cap counter-clockwise to remove, then check the oil level in the reservoir. Oil should be visible at the bottom of the cup, but the oil level must NOT be above the "FULL COLD" line. See Figure 33. **DO NOT FILL THE RESERVOIR.**
3. If necessary to add oil because of some type of leakage, use a quality 20W50 motor oil and add only enough oil to bring the level to the "FULL COLD" line. Reinstall the cap and fully tighten.

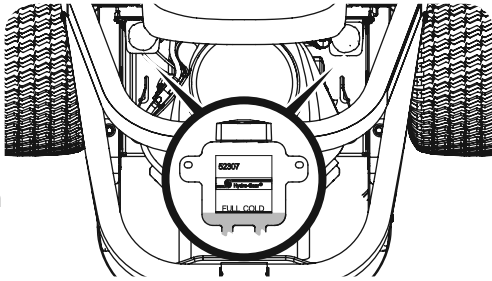


Figure 33

Note: Prior to the initial operation of the tractor, the oil level in the reservoir may be slightly higher than the maximum due to air in the oil lines. Operation of the tractor will eventually purge the air from the lines and the oil level will settle to the maximum.

4. Repeat the process for the other transmission.

Changing the Transmission Oil & Filter (If Equipped)

Note: Refer to maintenance schedule chart located in this manual for proper service intervals.

To change the transmission oil:

1. Remove the cap from the transmission oil expansion reservoir. See Figure 33.
2. Remove the three filter guard screws (a) and the filter guard (b). Clean any loose debris from around the filter (c). See Figure 34.
3. Place an oil drain pan with an eight quart (7.6 liter) capacity below the filter.
4. Remove the filter.
5. When the oil finishes draining, wipe the filter base and apply a thin coat of fresh oil on the filter base.
6. Re-install the filter guard.
7. Remove the top port plug (d) from the transaxles to allow the transaxles to vent during filling. See Figure 34.
8. Using a high-quality 20W50 motor oil, slowly fill the transaxles until oil appears at the top port on the transaxles.

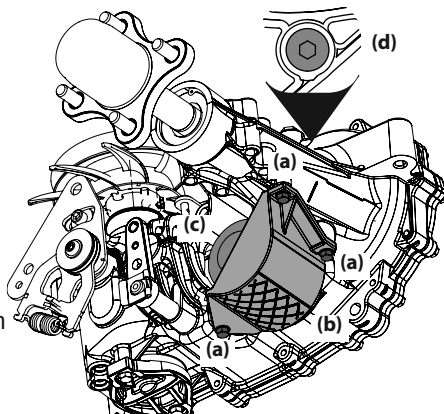


Figure 34

9. Re-install the top port plugs. Torque to 180 in-lbs (20.3 N-m), and continue to fill until the "FULL COLD" line is reached.
10. Replace the reservoir cap and fully tighten.
11. Repeat the process for the other transmission.
12. When replacing the transmission oil, a "purging" procedure should be performed to remove air from the system. The procedure should be performed with the rear wheels off the ground or in an area free of bystanders or objects. To perform the purging procedure:
 - a. Disengage the brake and open the bypass valve and start the tractor.
 - b. Move the tractor in forward and reverse 5-6 times.
 - c. Check the oil level and add as necessary.
 - d. Repeat steps a-c until the transaxles operate at normal noise levels and normal speeds.

Off-Season Storage

If your tractor is not going to be operated for an extended period of time (thirty days or more), the tractor should be prepared for storage. Store the tractor in a dry and protected location. If stored outside, cover the tractor (including the tires) to protect it from the elements. The procedures outlined below should be performed whenever the tractor is placed in storage.

1. Change the engine oil and filter following the instructions provided in this manual as well as the engine manual packed with this tractor.

⚠ WARNING

Never store the tractor with fuel in the tank indoors or in poorly ventilated enclosures, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, etc.

2. If storing the tractor for 30 days or more:
 - a. To prevent gum deposits from forming inside the engine's carburetor and causing possible malfunction of the engine, the fuel system must be either completely emptied, or the gasoline must be treated with a stabilizer to prevent deterioration.
 - b. Using a fuel stabilizer for storage between 30 and 90 days:
 - Read the product manufacturer's instructions and recommendations.
 - Add to clean, fresh gasoline the correct amount of stabilizer for the capacity (approximately 3 gallons) of the fuel system.
 - Fill the fuel tank with treated fuel and run the engine for 2-3 minutes to get stabilized fuel into the carburetor.
 - Fuel left in the fuel tank deteriorates and will cause serious starting problems.
 - c. Emptying the fuel system for storage of more than 90 days:
 - Prior to putting the tractor in storage, monitor fuel consumption with the goal of running the fuel tank empty.
 - Run the engine until it begins to stall. Use the choke to keep the engine running until all fuel in the carburetor has been exhausted.
 - Referring to the engine manual, drain the fuel from the carburetor bowl.
3. Clean the engine and the entire tractor thoroughly.

Note: Using a pressure washer or garden hose is not recommended for cleaning your tractor other than to clean the underside of the deck. It may cause damage to electrical components, spindles, pulleys, bearings or the engine. The use of water will result in shortened life and reduce serviceability.

4. Fully charge the battery, then disconnect the negative cable at the battery to prevent possible discharge. Recharge the battery periodically when in storage.

Note: Remove the battery if exposed to prolonged periods of sub-freezing temperatures. Store in a cool, dry location where temperatures are above freezing.

5. Lubricate all lubrication points.

SERVICE AND MAINTENANCE

Removing The Tractor From Storage

1. Check the engine oil.
2. Fully charge the battery and inflate the tires to the recommended pressure. See tire side wall for proper tire inflation pressure.
3. Fill the fuel tank with clean, fresh gasoline.
4. Start the engine and allow to idle for a few minutes to ensure engine is operating properly.
5. Drive the tractor without a load to make certain all the tractor systems are functioning properly.

Adjustments

Deck Leveling

If the cutting deck appears to be mowing unevenly, leveling adjustments can be performed.

⚠ WARNING

If the tractor has been recently run, the engine, muffler and surrounding metal surfaces will be very hot and can cause burns to the skin. Let the engine cool for at least five minutes. Exercise caution to avoid burns.

Leveling the Deck (Side-to-Side)

1. Place the deck lift handle or deck lift knob in a middle mowing position and rotate both outside blades so that they are perpendicular with the tractor.
2. Measure the distance from the outside of the left blade tip to the ground and the distance from the outside of the right blade tip to the ground. Both measurements taken should be equal. If they're not, proceed to the next step.
3. Locate the adjustment bolts (a) on the left and right side of the deck. See 3. Locate the adjustment bolts (a) on the left and right side of the deck. See Figure 35.5.
4. Loosen, but do not remove, the jam nuts (b) on the adjustment bolt. Adjust either the right or left adjustment bolt up or down as necessary until the side-to-side heights are equal. See 3. Locate the adjustment bolts (a) on the left and right side of the deck. See 3. Locate the adjustment bolts (a) on the left and right side of the deck. See Figure 35.

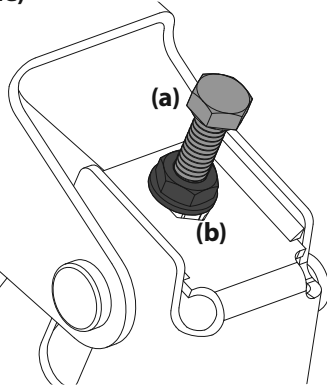


Figure 35

Note: Continue to check the front-to-back leveling as you make the side-to-side adjustment as the side-to-side adjustment can affect the front-to-back level. If necessary, adjust front-to-back as instructed previously.

5. When proper adjustment is achieved, re-tighten the jam nuts (b). Tighten to 57 ft-lbs (77.3 N-m).

Leveling the Deck (Pitch/Front-to-Rear)

The front of the deck should be between $\frac{1}{16}$ – $\frac{1}{4}$ " (2-6 mm) lower than the rear of the deck. Adjust if necessary as follows:

1. Park the tractor on a firm, level surface and place the deck lift handle or deck lift knob in a middle position.
2. Rotate the blade nearest the discharge chute so that it is parallel with the tractor.
3. Measure the distance from the front of the blade tip to the ground and the rear of the blade tip to the ground. The first measurement taken should be between $\frac{1}{16}$ – $\frac{1}{4}$ " (2-6 mm) less than the second measurement.

4. Determine the approximate distance necessary for proper adjustment and proceed, if necessary.
5. To raise the front of the deck, remove the end cap, loosen the outer jam nut (a) then tighten (thread inward) the inner nut (b) against the front hanger bracket. See Figure 36. When proper adjustment is achieved, re-tighten the outer jam nut (a) and replace the end cap.
6. To lower the front of the deck, remove the end cap, loosen the outer jam nut (a) then loosen (thread outward) the inner nut (b), away from the front hanger bracket. See Figure 36. When proper adjustment is achieved, re-tighten the outer jam nut (a) to 57 ft-lbs. (77.28 N-m) and replace the end cap.

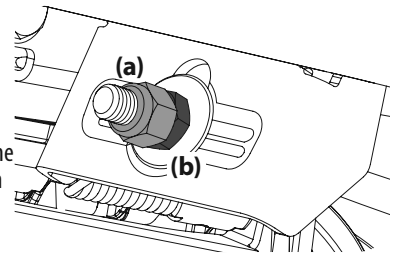


Figure 36

Adjusting the Deck Wheels

⚠ WARNING

Keep hands and feet away from the discharge opening of the cutting deck.

Note: The deck wheels are an anti-scalp feature of the deck and are not designed to support the weight of the cutting deck. The deck wheels should be approximately $\frac{1}{4}$ – $\frac{1}{2}$ " (6.35-12.7 mm) above the ground when the deck is set in the desired height setting. To adjust the deck wheels see the Assembly & Set-Up section for instructions.

Lapbar Drive Control Lever Stop Adjustment

When the lapbar drive control levers are both fully extended forward to the full-speed position and the tractor drifts left or right, the lapbar drive control lever stop adjustment can be adjusted to sync the wheel speeds. To perform the adjustment, proceed as follows:

1. Identify the side that the tractor is drifting to and adjust the opposite lapbar drive control lever. If the tractor drifts right, adjust the left lapbar drive control lever down (decrease speed) and vice versa.
2. Locate the lapbar drive control lever stop adjustment bolts (a) on the front of the seat frame. See 2. Locate the lapbar drive control lever stop adjustment bolts (a) on the front of the seat frame. See Figure 37.
3. To decrease the forward speed, turn the lapbar drive control lever stop adjustment bolts (a) clockwise. To increase the forward speed, turn the lapbar drive control lever stop adjustment bolts (a) counter-clockwise. Turn the lapbar drive control lever stop adjustment bolts (a) in the necessary direction $\frac{1}{4}$ -turn at a time. After turning the lapbar drive control lever stop adjustment bolts (a), check the adjustment by driving the tractor.
4. Continue the adjustment until the wheel speeds are in sync and the tractor drives straight with the drive control levers fully extended forward in the full-speed position.

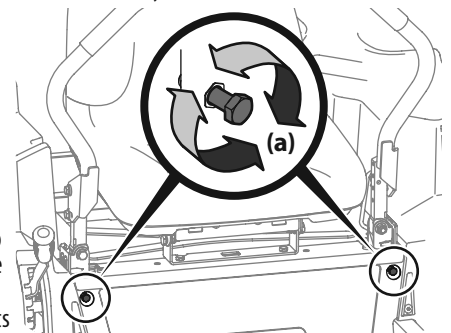


Figure 37

Note: The multi-tool (if equipped) can be used to make this adjustment.

To decrease the forward speed, turn the lapbar drive control lever stop adjustment bolts (a) clockwise. To increase the forward speed, turn the lapbar drive control lever stop adjustment bolts (a) counter-clockwise. Turn the lapbar drive control lever stop adjustment bolts (a) in the necessary direction $\frac{1}{4}$ -turn at a time. After turning the lapbar drive control lever stop adjustment bolts (a), check the adjustment by driving the tractor.

Note: Make sure the bolts extend through the nuts on the frame to engage the locking feature.

SERVICE AND MAINTENANCE

Service

Electrical System

A fuse is installed to protect the tractor's electrical system from damage caused by excessive amperage. Always use the same capacity fuse for replacement. If the electrical system does not function, check for a blown fuse.

If you have a recurring problem with blown fuses, have the tractor's electrical system checked by your authorized service dealer.

Relays and Switches

There are several safety switches in the electrical system. If a function of the safety interlock system described earlier is not functioning properly, have the electrical system checked by your authorized service dealer.

Parking Brake Adjustment

If the tractor does not come to a complete stop when the control levers are moved fully outward engaging the parking brake, or if the tractor's rear wheels can roll with the parking brake engaged (and the hydrostatic relief valve open), the brake is in need of adjustment. See your authorized service dealer to have the brake adjusted.

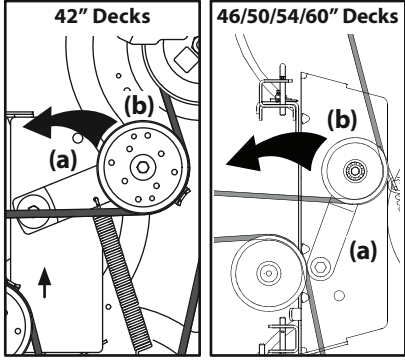
Deck Removal

Remove the tractor deck from the tractor as follows:

1. Move the tractor to a level surface, disengage the PTO, stop the engine, place the RH and LH drive control levers fully outward into the park brake engaged position.
2. There are two methods for removing the belt, to remove the belt by releasing belt tension go on to step 3, to remove the belt by rolling the belt off the PTO pulley skip ahead to step 4.

⚠ WARNING

Use caution to avoid pinching your fingers when rolling the belt off the PTO pulley.

3. Releasing belt tension with the idler pulley:
 - a. Using the deck lift handle or the deck lift pedal and knob, raise the deck to the position that provides the most horizontal run of the belt between the deck idler pulleys and the PTO pulley on the bottom of the engine.
 - b. Working from the middle of the tractor, pivot the idler bracket (a) and movable idler pulley (b) rearward just far enough to lift the belt up and over the spindle pulley. See Figure 38.
- 
- Figure 38**
- c. From beneath the rear of the tractor, slide the belt off of the PTO pulley on the bottom of the engine.
 - d. Lower the deck into the lowest mowing position.
 - e. Skip ahead to step 5.
4. Rolling the belt off the PTO pulley:
 - a. Raise the deck to the position that provides the most horizontal run of the belt between the deck idler pulleys and the PTO pulley on the bottom of the engine.

- b. Sitting behind the tractor facing forward, reach beneath the tractor to grasp the belt at the front of the PTO pulley.
- c. Pull the left side of the belt rearward and downward while manually turning the PTO pulley to the right until the belt rides out onto the edge of the lower sheave of the pulley.

Note: If pulling the right side of the belt, turn the pulley left.

- d. While still holding the PTO belt (a) downward, continue turning the PTO pulley (b) until the PTO belt (a) is rolled off the PTO pulley (b). Refer to Figure 39.
- e. Lower the deck into the lowest mowing position.
- f. Move on to step 5.

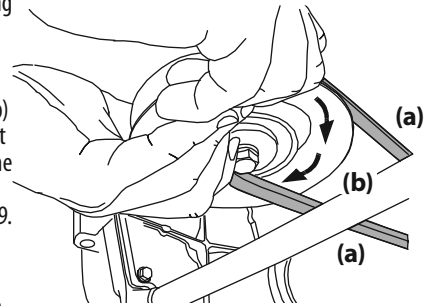


Figure 39

⚠ WARNING

The deck lift on tractors with the deck lift knob is spring-assisted and under tension. Injury can occur if spring-assisted deck lift is released suddenly. Always use the multi-tool to secure the deck lift in place.

5. On tractors equipped with the deck lift knob, use the deck lift pedal and deck lift knob to place the deck in the lowest position and use the multi-tool (a) to lock the deck lift components in place as shown in Figure 40. On tractors with a deck lift handle, lower the deck into the lowest position.

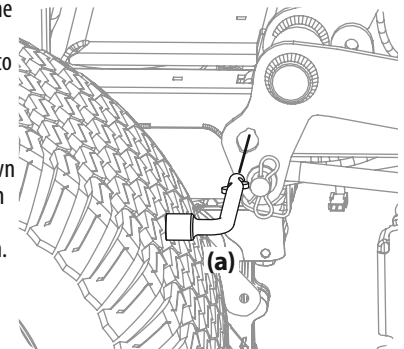


Figure 40

- a. Remove the two bow-tie pins (a) from the clevis pins (b) that secure the lift link brackets (c) to the rear deck lift brackets (d) on the deck. Remove the clevis pins (b). See Figure 41.

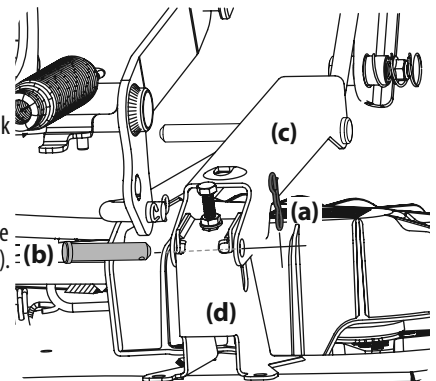


Figure 41

SERVICE AND MAINTENANCE

- b. Remove the third bow-tie pin (a) from the clevis pin (b) that secures the front deck control rod (c) to the front deck lift bracket (d). Remove the clevis pin (b). See Figure 42.
- c. Carefully maneuver the deck out from beneath the tractor.

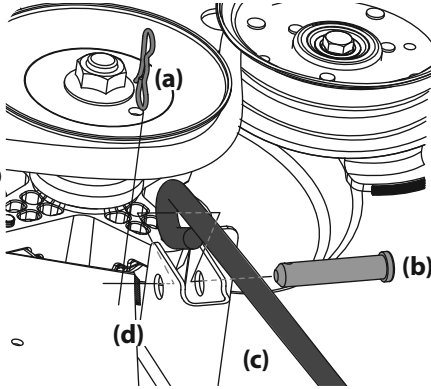


Figure 42

Deck Installation

Install the deck on the tractor as follows:

1. Carefully maneuver the the deck under the tractor from the right side, lining up the deck hanger brackets and the deck lift arms on deck lift rod/deck release pin tractors and align the lift link brackets and front deck control rod with the deck lift brackets on three-pin tractors.
2. Once the deck is under the tractor, move the deck to the lowest mowing position.
Note: To line the brackets up properly, it may be necessary to place a small block of wood under each side of the deck.
3. Re-install the applicable hardware for your tractor.
4. Make certain the "V" belt is in the spindle pulleys on the deck; then route the belt rearward beneath the tractor frame, above the transmission tube(s), to the PTO pulley on the bottom of the engine.
5. Raise the deck to the position that provides the most horizontal run of the belt between the deck idler pulleys and the PTO pulley on the bottom of the engine.
6. Make certain the belt is in the spindle pulleys of the deck, and that the backside of the belt is against both the fixed and movable idler pulleys.
7. Sitting behind the tractor, facing forward, make certain the belt is not twisted; then reach beneath the tractor to grasp the belt and pull it toward the PTO pulley.

⚠ WARNING

Use caution to avoid pinching your fingers when rolling the belt onto the PTO pulley.

8. Pull the right side of the PTO belt rearward and place the narrow V-side of the PTO belt into the PTO pulley. See Figure 39.
9. While holding the PTO belt and PTO pulley together, rotate the PTO pulley to the left (See Figure 39). Continue holding and rotating the PTO pulley and PTO belt until the PTO belt is fully rolled into the PTO pulley.

Note: Before using the tractor double-check the belt routing to make sure that the belt has been routed properly.

Replacing the Belt

1. Remove the deck from beneath the tractor, (refer to Deck Removal).
2. Loosen, but do not remove the hardware on the right (a) and left idler pulley (b). Refer to Figure 43 for 42" decks, Figure 44 for 46" decks and Figure 45 for 50", 54" and 60" decks.

Note: Take note of the position of the belt guards (c) to ensure they are properly re-installed.

Note: On some decks it may be necessary to remove the spindle covers to remove and/or install the new belt. To remove the spindle covers, remove the screws securing them to the deck.

3. Carefully remove the belt from around the idler pulleys (a & b) and the spindle pulleys (d).
4. Install the new belt pulleys as shown and reinstall the belt covers.
5. Place the belt around the idler pulleys removed in step 3 with the "V" side facing in. Once in place, reinstall all the hardware and tighten the flange lock nut to secure the assembly.
6. Route the belt as shown and then reinstall the deck (refer to Deck Installation)

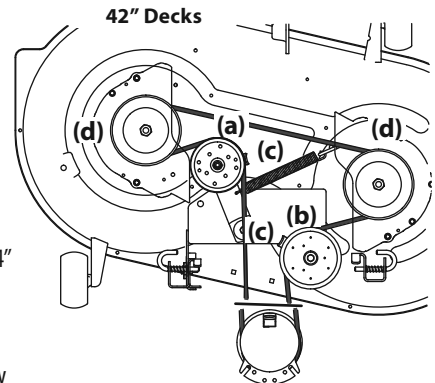


Figure 43

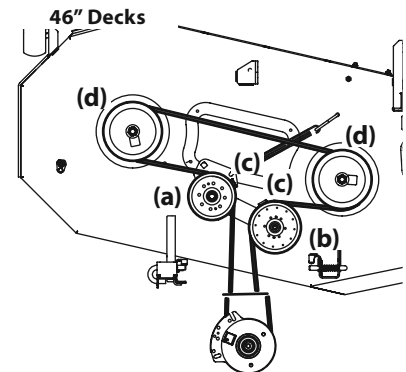


Figure 44

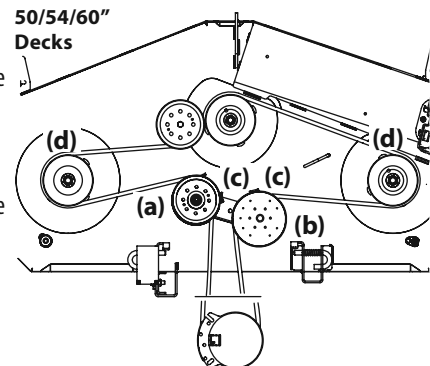


Figure 45

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Tractor Blade Care

WARNING

Before performing any maintenance, disengage the PTO and move the lapbar drive control levers fully outward into the Park Brake engaged position. If leaving the tractor unattended, turn the ignition key to the STOP position and remove key. Protect your hands by using heavy gloves when handling the blades. When servicing the tractor deck, be careful not to cut yourself on the sharpened blades.

The cutting blades must be kept sharp at all times. Sharpen the cutting edges of the blades evenly so that the blades remain balanced and the same angle of sharpness is maintained.

If the cutting edge of a blade has already been sharpened many times, or if any metal separation is present, it is recommended that new blades be installed. New blades are available at your authorized dealer.

The blades may be removed as follows.

1. Remove the deck from beneath the tractor, (refer to Deck Removal) then gently flip the deck over to expose its underside.
2. Use a $\frac{15}{16}$ " wrench to hold the hex nut on top of the spindle assembly when loosening the hex nut (a) securing the blade (b). A block of wood (c) may be placed between the deck housing and the cutting edge of the blade (b) to help in breaking loose the hex nut (a) securing the blade. See Figure 46.
3. When reinstalling the blades, be sure they are installed so that the wings are pointing upward toward the top of the deck.
4. Tighten the hex nuts (a) to 70-90 ft. lbs. (95-122 N-m).
5. Reinstall the deck (refer to Deck Installation).

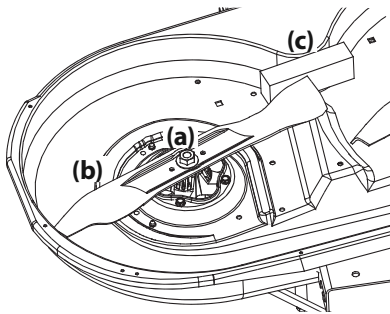


Figure 46

Changing the Transmission Drive Belt

Several components must be removed and special tools used in order to change the tractor's transmission drive belt. See your authorized service dealer to have the transmission drive belt replaced.

Tractor Creeping

Creeping is the slight forward or backward movement of the tractor when the throttle is on and the speed control levers are in the neutral position. If your tractor creeps, see an authorized service dealer.

TROUBLESHOOTING

WARNING

Before performing any type of maintenance/service, disengage all controls and stop the engine. Wait until all moving parts have come to a complete stop. Disconnect spark plug wire and ground it against the engine to prevent unintended starting. Always wear safety glasses during operation or while performing any adjustments or repairs.

This section addresses minor service issues. To locate the nearest authorized service center consult the separate supplement sheet for contact information.

Problem	Cause	Remedy
Engine Fails to start	<ol style="list-style-type: none"> 1. PTO/Blade Engage knob engaged. 2. Parking brake not engaged. 3. Spark plug wire disconnected. 4. Throttle control lever not in correct starting position. 5. Fuel tank empty, or stale fuel. 6. Blocked fuel line or fuel filter. 7. Faulty spark plug. 8. Engine flooded. 9. Fuse(s) blown. 	<ol style="list-style-type: none"> 1. Place knob in disengaged (OFF) position. 2. Engage parking brake. 3. Connect wire to spark plug. 4. Place Throttle lever to FAST position. 5. Fill tank with clean, fresh (less than 30 days old) gas. 6. Replace fuel line. See a Sears or other qualified service dealer. Replace fuel filter. See the Service and Maintenance section. 7. Clean, adjust gap or replace plug. 8. Crank engine with throttle in FAST position. 9. Replace fuse.
Engine runs erratically	<ol style="list-style-type: none"> 1. Riding mower running with Choke activated. 2. Spark plug wire loose. 3. Blocked fuel line or stale fuel. 4. Vent in gas cap plugged. 5. Water or dirt in fuel system. 6. Dirty air cleaner. 	<ol style="list-style-type: none"> 1. Check that the electric choke is working. See a Sears or other qualified service dealer. 2. Connect and tighten spark plug wire. 3. Replace fuel line. See a Sears or other qualified service dealer. Fill tank with clean, fresh gasoline and replace fuel filter. See the Service and Maintenance section. 4. Clear vent or replace cap if damaged. 5. Drain fuel tank. Refill with clean, fresh gasoline. See the Service and Maintenance section. 6. Clean or replace air cleaner paper element or clean foam pre-cleaner.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low 2. Air flow restricted 	<ol style="list-style-type: none"> 1. Fill engine with proper amount and type of oil. 2. Clean grass clippings and debris from around the engine's cooling fins and blower housing.
Engine hesitates at high RPMs	<ol style="list-style-type: none"> 1. Spark plug gap set too close 	<ol style="list-style-type: none"> 1. Remove spark plug and adjust gap.
Engine idles poorly	<ol style="list-style-type: none"> 1. Fouled spark plug 2. Dirty air cleaner 	<ol style="list-style-type: none"> 1. Replace spark plug and adjust gap. 2. Clean or replace air cleaner element and/or clean pre-cleaner.
Excessive vibration	<ol style="list-style-type: none"> 1. Cutting blades loose or unbalanced 2. Damaged, dull, or bent cutting blade 	<ol style="list-style-type: none"> 1. Tighten blade and spindle. Balance blade. 2. Replace blade.
Uneven cut	<ol style="list-style-type: none"> 1. Deck not leveled properly. 2. Dull blade. 3. Uneven tire pressure. 	<ol style="list-style-type: none"> 1. Perform side-to-side deck adjustment. 2. Sharpen or replace blade. 3. Check tire pressure in all four tires.