

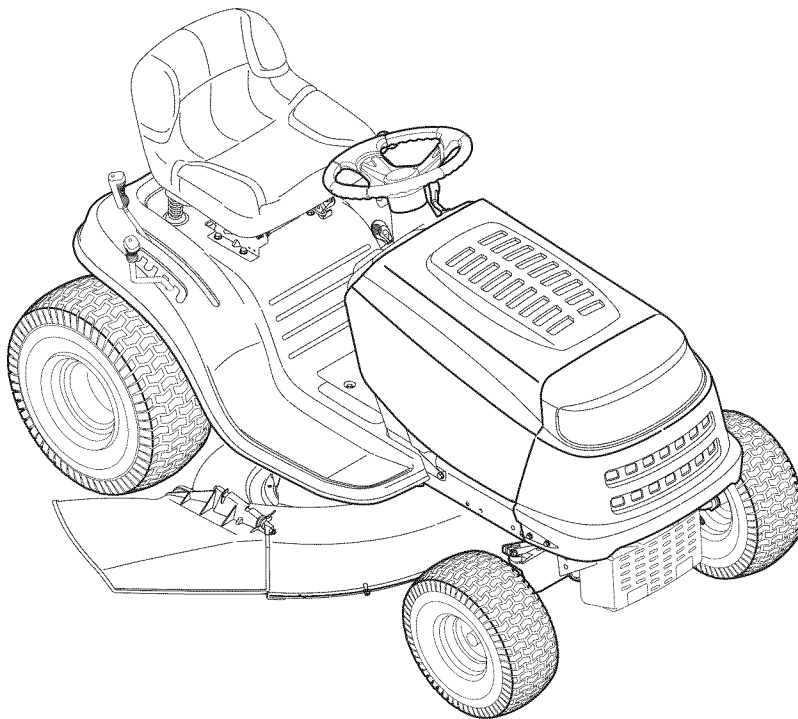
Operator's Manual

Hydrostatic Lawn Tractor

MODELS 790

791

792



IMPORTANT: Read safety rules and instructions carefully before operating equipment.

Warning: This unit 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 arrester meeting applicable local or state laws (if any). If a spark arrester 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 arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-9722.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-9722

PRINTED IN U.S.A.

FORM NO. 769-01616A
(1/31/2005)

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FINDING MODEL NUMBER

This Operator's Manual is an important part of your new lawn tractor. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.



Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. A sample model plate is also given below. You can locate the model plate by looking at the underside of the seat. This information will be necessary to use the manufacturer's web site and/or help from the Customer Support Department or an authorized service dealer.



Copy the model number here: _____

Copy the serial number here: _____

CUSTOMER SUPPORT

Please do NOT return the unit to the retailer without first contacting Customer Support.

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, you can seek help from the experts. Choose from the options below:

	<p>Visit mtdproducts.com for many useful suggestions. Click on Customer Support button and you will get the four options reproduced here. Click on the appropriate button and help is immediately available.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p>Find Answers Click here to search our knowledge base. Search by product, keyword, or phrase.</p> <p>My Stuff Login to check the status of your questions, modify your inquiries, or update your personal profile.</p> <p>Service Locator Need local assistance? Click here to find authorized service centers in your area.</p> <p>Manuals Online Need a manual and/or parts list? Download literature from recent model years.</p> </div> <p style="text-align: right; font-style: italic; margin-top: 10px;"><i>The answer you are looking for could be just a mouse-click away!</i></p>
	<p>If you prefer to reach a Customer Support Representative, please call (330) 220-4MTD or 1(800) 800-7310.</p>
	<p>The engine manufacturer is responsible for all engine-related issues with regard to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual, packed separately with your unit, for more information.</p>

SECTION 1: IMPORTANT SAFE OPERATION 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 rules for safe operation 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.

California Proposition 65 Warning:



WARNING: Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

GENERAL OPERATION

1. Read, understand, and follow all instructions on the machine 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 machine and disengage them quickly.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
4. Never allow adults to operate this machine without proper instruction.
5. 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.
6. Thoroughly inspect the area where the equipment 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.
7. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
8. 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.
9. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes and jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals.
10. Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without the discharge cover or entire grass catcher in its proper place.
11. Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet.
12. A missing or damaged discharge cover can cause blade contact or thrown object injuries.
13. Stop the blade(s) when crossing gravel drives, walks, or roads and while not cutting grass.
14. Watch for traffic when operating near or crossing roadways. This machine is not intended for use on any public roadway.
15. Do not operate the machine while under the influence of alcohol or drugs.
16. Mow only in daylight or good artificial light.
17. Never carry passengers.
18. Disengage blade(s) before shifting into reverse. Back up slowly. Always look down and behind before and while backing to avoid a back-over accident.
19. Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
20. Disengage blade(s), set 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.
21. Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set parking brake, stop engine and remove key before dismounting.
22. Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down ramp(s), because the unit could tip over, causing serious personal injury. The unit must be pushed manually on ramp(s) to load or unload properly.

23. Muffler and engine become hot and can cause a burn. Do not touch.
24. 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 unit, which could result in serious injury.
25. Disengage all attachment clutches, depress the brake pedal completely and shift into neutral before attempting to start engine.
26. Your machine is designed to cut normal residential grass of a height no more than 10". 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 mower deck presenting a potential fire hazard.
27. Use only accessories and attachments approved for this machine by the machine manufacturer. Read, understand and follow all instructions provided with the approved accessory or attachment.
28. Data indicates that operators, age 60 years and above, are involved in a large percentage of riding mower-related injuries. These operators should evaluate their ability to operate the riding mower safely enough to protect themselves and others from serious injury.
29. If situations occur which are not covered in this manual, use care and good judgment. Contact an authorized MTD Service Dealer for assistance.

SLOPE OPERATION

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.

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

1. Mow up and down slopes, not across. Exercise extreme caution when changing direction on slopes.
2. Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
3. Use slow speed. Choose a low enough speed setting so that you will not have to stop or shift while on the slope. Tires may lose traction on slopes even though the brakes are functioning properly. Always keep machine in gear when going down slopes to take advantage of engine braking action.
4. Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
5. Use extra care with grass catchers or other attachments. These can change the stability of the machine.
6. Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.
7. Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.

DO NOT:

1. Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
2. Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff, ditch, or if an edge caves in.
3. Do not try to stabilize the machine by putting your foot on the ground.
4. Do not use a grass catcher on steep slopes.
5. Do not mow on wet grass. Reduced traction could cause sliding.
6. Do not shift to neutral and coast downhill. Over-speeding may cause the operator to lose control of the machine resulting in serious injury or death.
7. Do not tow heavy pull behind attachments (e.g. loaded dump cart, lawn roller, etc.) on slopes greater than 5 degrees. When going down hill, the extra weight tends to push the tractor and may cause you to lose control. (e.g. tractor may speed up, braking and steering ability are reduced, attachment may jack-knife and cause tractor to overturn).

CHILDREN

1. Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. They do not understand the dangers. Never assume that children will remain where you last saw them.
 - a. Keep children out of the mowing area and in watchful care of a responsible adult other than the operator.
 - b. Be alert and turn machine off if a child enters the area.
 - c. Before and while backing, look behind and down for small children.
 - d. Never carry children, even with the blade(s) shut off. They may fall off and be seriously injured or interfere with safe machine operation.

- e. 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 machine.
 - f. **To avoid back-over accidents, always disengage the cutting blade(s) before shifting into reverse. The “Reverse Caution Mode” should not be used when children or others are around.**
 - g. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
 - h. Remove key when machine is unattended to prevent unauthorized operation.
9. Never allow children under 14 years old to operate the machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.

TOWING

1. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
2. Follow the manufacturers recommendation for weight limits for towed equipment and towing on slopes.
3. Never allow children or others in or on towed equipment.
4. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
5. Travel slowly and allow extra distance to stop.
6. Do not shift to neutral and coast downhill.

SERVICE

SAFE HANDLING OF GASOLINE:

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.
 - a. Use only an approved gasoline container.
 - b. 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.
 - c. 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.
 - d. 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.

- e. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- f. Never fuel machine indoors.
- g. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
- h. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to allow space for fuel expansion.
- i. Replace gasoline cap and tighten securely.
- j. If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
- k. To reduce fire hazards, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
- l. Never store the machine 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.
- m. Allow a machine to cool at least 5 minutes before storing.

GENERAL SERVICE:

1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless, and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain the blade(s) and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.
3. Periodically check to make sure the blades come to complete stop within approximately (5) five seconds after operating the blade disengagement control. If the blades do not stop within the this time frame, your unit should be serviced professionally by an authorized MTD Service Dealer.
4. Check brake operation frequently as it is subjected to wear during normal operation. Adjust and service as required.
5. Check the blade(s) and engine mounting bolts at frequent intervals for proper tightness. 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, listed in this manual. “Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!”
6. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
7. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

8. Never tamper with the safety interlock system or other safety devices. Check their proper operation regularly.
9. After striking a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before starting and operating.
10. Never attempt to make adjustments or repairs to the machine while the engine is running.
11. Grass catcher components and the discharge cover are subject to wear and damage which could expose moving parts or allow objects to be thrown.

For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"

12. Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
13. Maintain or replace safety and instruction labels, as necessary.
14. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.



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.



⚠ DANGER

ROTATING BLADES CAUSE SERIOUS INJURY OR DEATH

- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND
- NEVER CARRY CHILDREN EVEN WITH BLADE(S) OFF.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- MOWING IN REVERSE IS NOT RECOMMENDED.

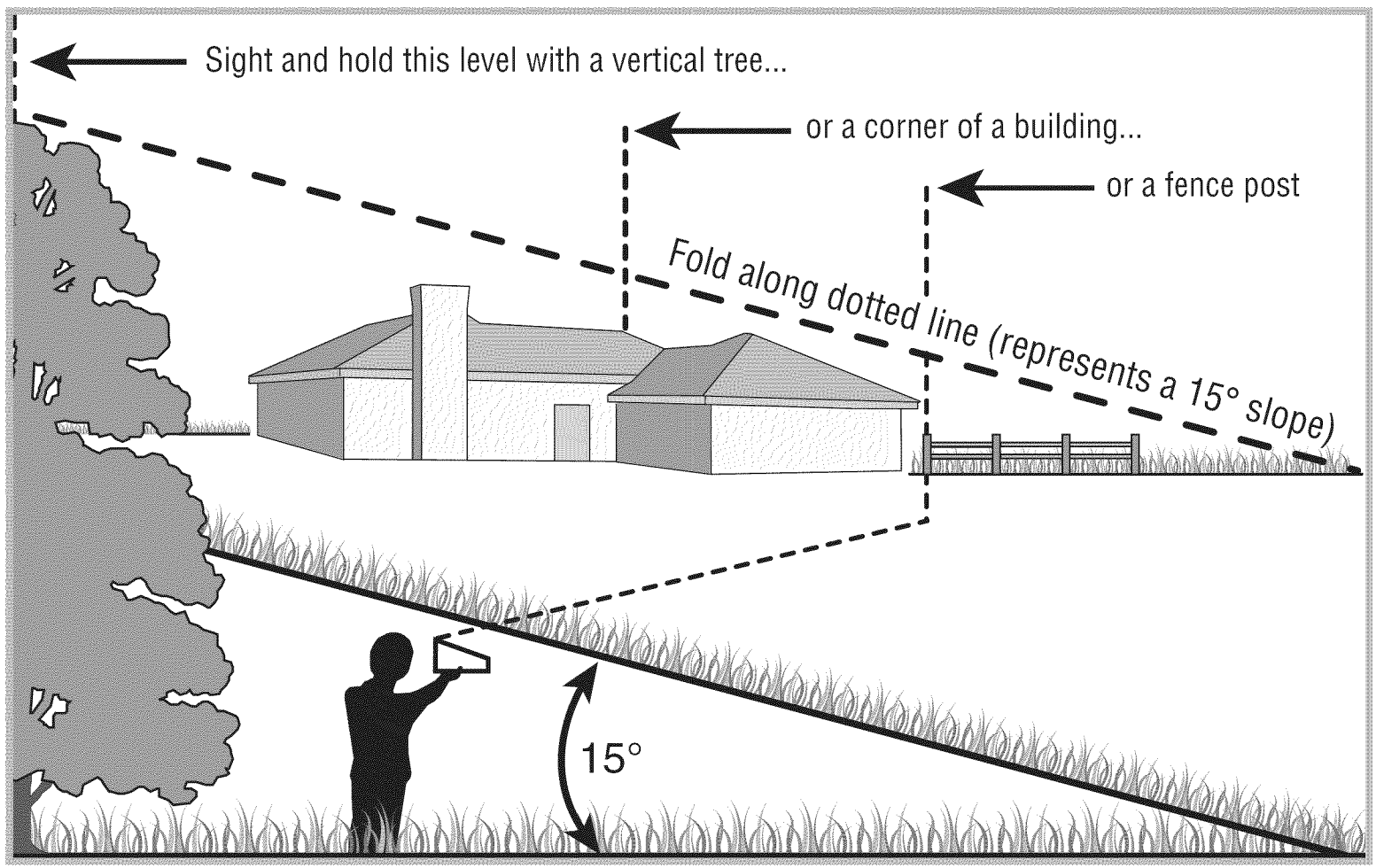
⚠ WARNING

TO AVOID SERIOUS INJURY OR DEATH

- GO UP AND DOWN SLOPES, NOT ACROSS.
- AVOID SUDDEN TURNS.
- DO NOT OPERATE THE UNIT WHERE IT COULD SLIP OR TIP.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE(S) AND BACK DOWNHILL SLOWLY.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES, ETC.) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- BEFORE LEAVING OPERATOR'S POSITION, DISENGAGE BLADE(S), ENGAGE PARKING BRAKE, SHUT OFF AND REMOVE KEY.

READ OPERATOR'S MANUAL

SECTION 2: SLOPE GAUGE



SECTION 3: TRACTOR SET-UP

IMPORTANT: Your tractor is shipped with motor oil in the engine. However, **you MUST check the oil level** before starting the engine and operating the tractor. Refer to the separate engine manufacturer's Operator/Owner Manual packed with your tractor. Read instructions carefully.

Loose Parts

Packaged with this Operator's Manual you'll find:

- One Small Clamp (726-0354)
- One 1/4-20 x 1/2-inch Screw (710-0599)
- One Oil Drain Sleeve (731-1682A)

Store the clamp and screw in a convenient place. Both will be necessary to properly secure your tractor's wire harness should you choose to purchase a front-end attachment for your lawn tractor. Refer to page 27 for a table of available attachments and accessories.

Refer to page 21 for information regarding the oil drain sleeve and changing your engine oil.

Attaching The Steering Wheel

Tools Required For Assembly

(1) 1/2" socket wrench

1. The hardware for attaching the steering wheel has been packed within the steering wheel, beneath steering wheel cap. Carefully pry off the steering wheel cap and remove the hardware.
2. **With the wheels of the tractor pointing straight forward**, place the steering wheel over the steering shaft.
3. Place the washer (with the cupped side down) over the steering shaft and secure with the hex bolt. See Figure 1.
4. Place the steering wheel cap over the center of the steering wheel and push downward until it "clicks" into place.

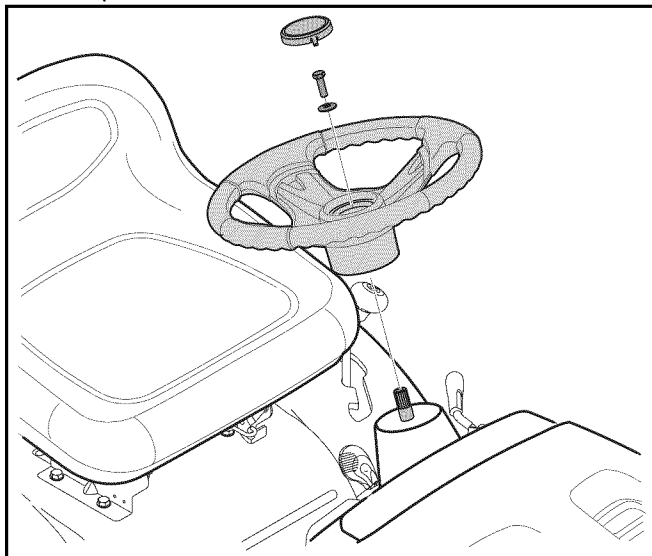


Figure 1

Shipping Brace Removal



WARNING: Make sure the riding mower's engine is off, remove the ignition key, and set the parking brake before removing the shipping brace.

- Locate the shipping brace and accompanying warning tag found on the right side of the mower, between the discharge chute and the cutting deck. See Figure 2.

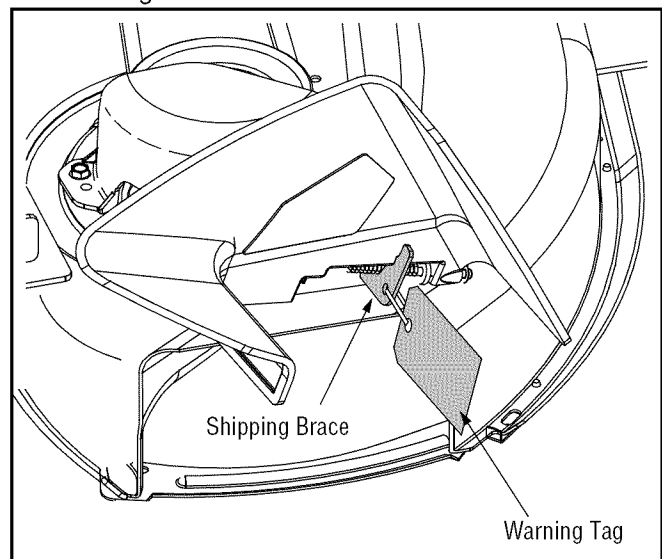


Figure 2

- While holding the discharge chute with your left hand, remove the shipping brace with your right hand by grasping it between your thumb and index finger and rotating it clockwise.



WARNING: The shipping brace, used for packaging purposes only, must be removed and discarded before operating your riding mower.



WARNING: The mowing deck is capable of throwing objects. Failure to operate the riding mower without the discharge cover in the proper operating position could result in serious personal injury and/or property damage.

Attaching the Battery Cables

NOTE: Some models are shipped with the battery cables already connected.

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

- The positive cable (heavy red wire) is secured to the positive battery terminal (+) with a hex bolt and hex nut at the factory. Make certain that the rubber boot covers the terminal to help protect it from corrosion.
- Remove the hex bolt and hex nut from the negative cable.
- Remove the black plastic cover, if present, from the negative battery terminal and attach the negative cable (heavy black wire) to the negative battery terminal (-) with the bolt and hex nut.
- Make certain the hold-down rod is in position over the battery, securing it in place. See Figure 3.

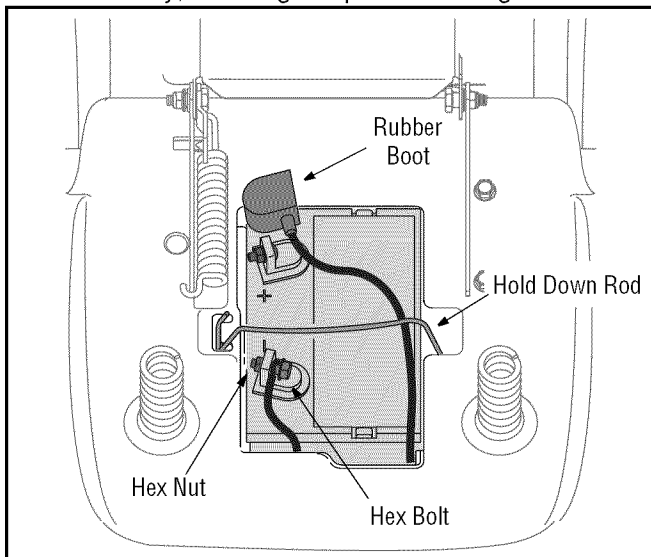


Figure 3

NOTE: If the battery is put into service after the date shown on top of battery, charge the battery as instructed on page 24 of this manual prior to operating the tractor.

Gas and Oil Fill-up

The gasoline tank is located under the hood and has a capacity of 1-1/2 gallons. Do not overfill.



WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

Service the engine with gasoline and oil as instructed in the separate engine manufacturer's Operator/Owner Manual packed with your tractor. Read instructions carefully.

Tire Pressure



WARNING: Maximum tire pressure under any circumstances is 30 psi. Equal tire pressure should be maintained at all times.

The tires on your unit may be over-inflated for shipping purposes. Reduce the tire pressure before operating the tractor. Recommended operating tire pressure is approximately 10 p.s.i. for the rear tires & 14 p.s.i. for the front tires. Check sidewall of tire for maximum p.s.i.

Attaching The Seat

Seat styles vary by tractor model and there are three different styles available:

- Standard Adjustment
- Quick Adjustment &
- Knob Adjustment

Refer to Figure 4, Figure 5 and Figure 6 to identify your tractor's seat style and follow applicable instructions below.

NOTE: For shipping reasons, seats are either fastened to the tractor seat's pivot bracket with a plastic tie, or mounted backward to the pivot bracket. In either case, free the seat from its shipping position and remove the two **hex** screws (or knobs, on models so equipped) from the bottom of seat before proceeding with applicable instructions below.

Standard Adjustment Seat

1. Position the shoulder screws (found on the base of the seat) inside the slot openings in the seat pivot bracket. Figure 4.
2. Slide the seat slightly rearward in the seat pivot bracket, lining up the rear slots in the pivot bracket with the remaining two holes in the seat's base.
3. Select desired position for the seat, and secure with the two hex screws removed earlier. See Figure 4.

Quick Adjustment Seat

NOTE: If your seat was shipped mounted backwards on the seat pivot bracket, pull out the tab found on the seat stop and hold it open while sliding the seat off the seat pivot bracket. See Figure 5.

1. Line up the plastic seat spacers with the slots in seat pivot bracket.
2. Slide seat in until front seat spacer engages the seat stop. See Figure 5.



WARNING: Before operating this machine, make sure the seat is engaged in the seat stop, stand behind the machine and pull back on seat until fully engaged into stop.

Knob Adjustment Seat

1. Position the shoulder screws (found on the base of the seat) inside the slot openings in the seat pivot bracket. Figure 6.
2. Slide the seat slightly rearward in the seat pivot bracket, lining up the rear slots in the pivot bracket with the remaining two holes in the seat's base.
3. Select desired position for the seat, and secure with the two knobs removed earlier. See Figure 6.

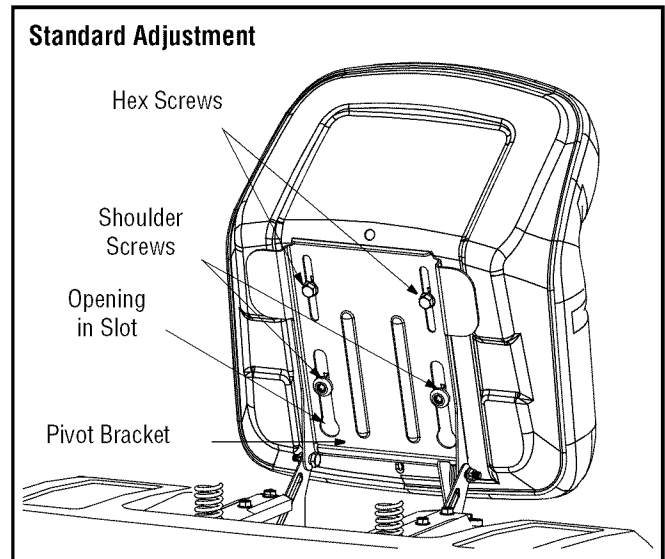


Figure 4

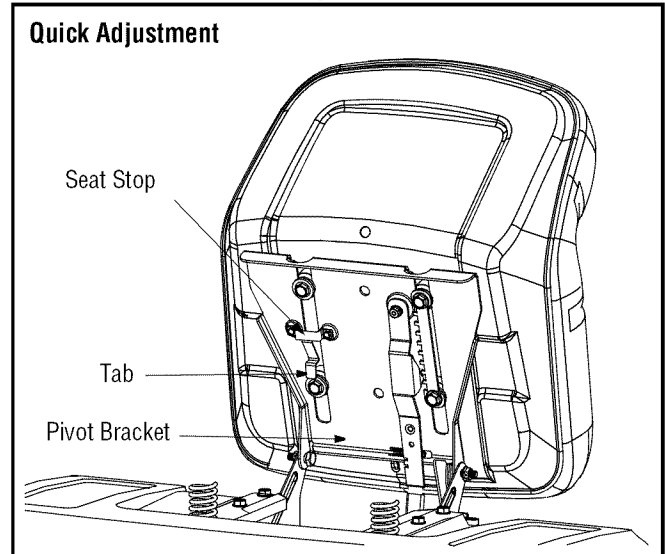


Figure 5

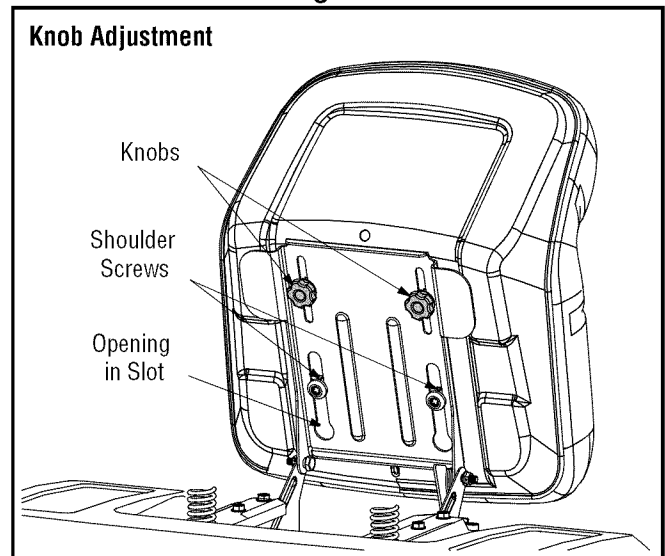


Figure 6

SECTION 4: KNOW YOUR LAWN TRACTOR

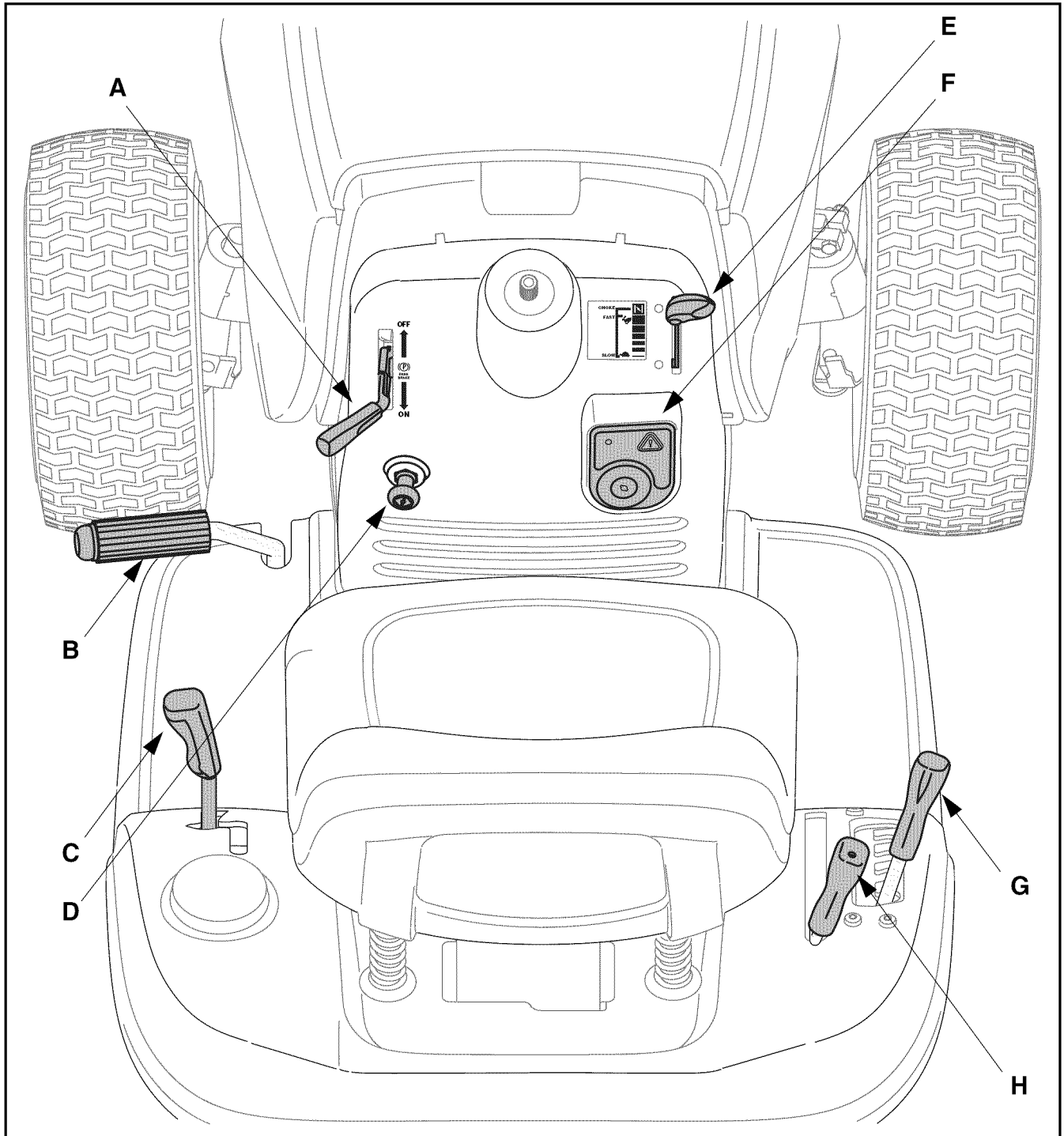


Figure 7

- | | | | |
|---|---------------------------------------|---|--------------------------|
| A | Parking Brake Lever | E | Throttle Control Lever |
| B | brake Pedal | F | Ignition Switch Module |
| C | Speed Control Lever | G | Deck Lift Lever |
| D | Choke Control (on models so equipped) | H | PTO (Blade Engage) Lever |

NOTE: Any reference in this manual to the RIGHT or LEFT side of the tractor is observed from operator's position.

Throttle Control Lever

The throttle control lever is located on the right side of the tractor's dash panel. This lever controls the speed of the engine and, on most models, when pushed all the way forward, the choke control also. When set in a given position, the throttle will maintain a uniform engine speed. See Figure 8.

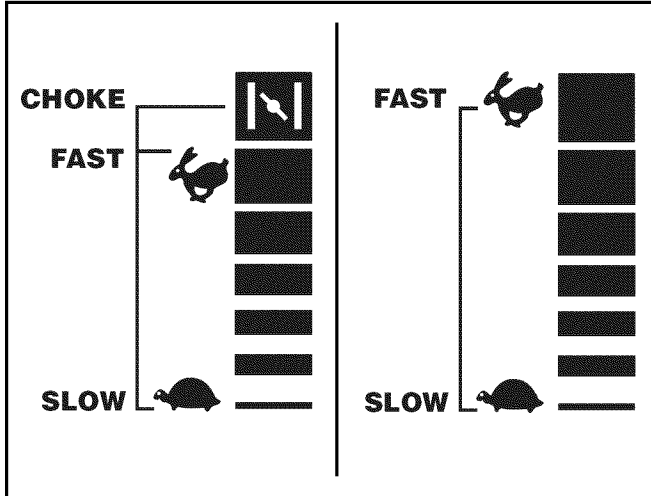
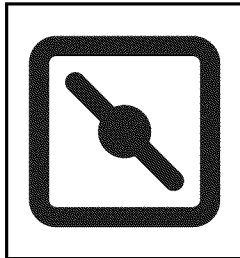


Figure 8

IMPORTANT: When operating the tractor with the cutting deck engaged, be certain that the throttle lever is **always** in the FAST (rabbit) position.

Choke Control

On most models, moving the throttle lever all the way forward activates the engine's choke control. On other models, the choke control can be found on the left side of the dash panel and is activated by pulling the knob outward. Activating the choke control closes the choke plate on the carburetor and aids in starting the engine. Refer to **Starting The Engine** on page 15 of this manual for detailed starting instructions.



Brake Pedal

The brake pedal is located on the left side of the lawn tractor, along the running board. Depress the brake pedal part way down to slow the tractor's ground speed. Depress the pedal all the way down to engage the disc brake and bring the tractor to a complete stop.

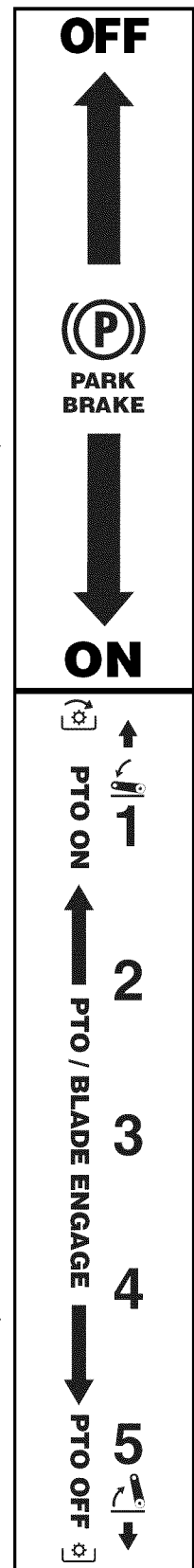
NOTE: The brake pedal must be depressed to start the engine. Refer to **Safety Interlock Switches** on page 14.

Parking Brake Lever

To set the parking brake, fully depress the brake pedal. Move the parking brake lever all the way down and into the ON position. Release the brake pedal to allow the parking brake to engage.

To release the parking brake, depress the brake pedal and move the parking brake lever into the OFF position. Release the brake pedal.

NOTE: The parking brake must be set if the operator leaves the seat with the engine running or the engine will automatically shut off.



Deck Lift Lever

Found on your tractor's right fender, the deck lift lever is used to change the height of the cutting deck. To use, move the lever to the left, then place in the notch best suited for your application.

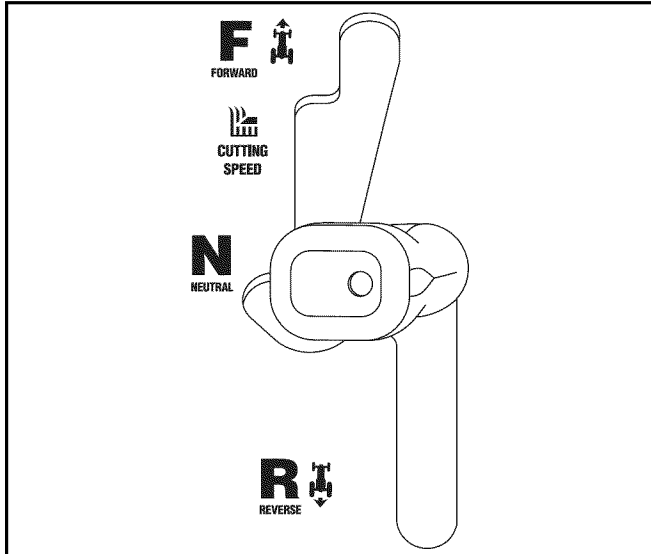
PTO (Blade Engage) Lever

Found on the tractor's right fender, the PTO (blade engage) lever is used to engage power to the cutting deck or other (separately available) attachments. To operate, move the lever all the way forward. Moving the lever all the way rearward into the PTO OFF position disengages power to the cutting deck/ attachment.

NOTE: The PTO (blade engage) lever **must** be in the disengaged (PTO OFF) position when starting the engine.

Speed Control Lever

The speed control lever, located on the left fender, allows you to regulate the travel direction and ground speed of the lawn tractor. To use, release the parking brake and move the speed control lever forward (to travel forward) or rearward (to travel in reverse). The further forward or rearward that the lever is moved, the faster the tractor will travel.



Place the speed control lever in the Cutting Speed, or slower, position when mowing.

IMPORTANT: Do NOT attempt to change the direction of travel when the tractor is in motion. Serious damage to the tractor's transmission could result. Always bring the tractor to a **complete** stop before moving the speed control lever from forward to reverse or vice versa.

IMPORTANT: Always set the parking brake when leaving the tractor unattended.

Ignition Switch Module



WARNING: Never leave a running machine unattended. Always disengage PTO, move shift lever into neutral position, set parking brake, stop engine and remove key to prevent unintended starting.

To start the engine, insert the key into the ignition switch and turn clockwise to the **START** position. Release the key into the **NORMAL MOWING MODE** position once the engine has fired.

To stop the engine, turn the ignition key counterclockwise to the **STOP** position. See Figure 9.

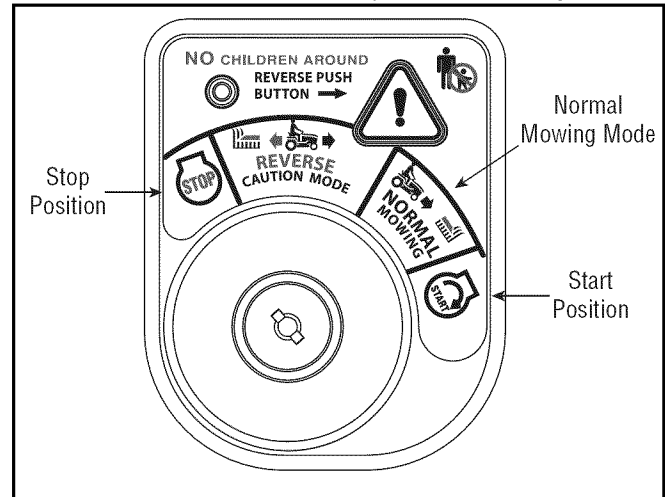


Figure 9

IMPORTANT: Prior to operating the tractor, refer to both **Safety Interlock Switches** on page 14 and **Starting The Engine** on page 15 of this manual for detailed instructions regarding the Ignition Switch Module and operating the tractor in **REVERSE CAUTION MODE**.

SECTION 5: OPERATING YOUR LAWN TRACTOR

Safety Interlock Switches

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 *MTD* service dealer.

- The safety interlock system prevents the engine from cranking or starting unless the parking brake is engaged, and the PTO (Blade Engage) 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 (Blade Engage) lever in the engaged (ON) position, regardless of whether the parking brake is engaged.
- The engine will automatically shut off if the operator engages the PTO with the parking brake ON.
- With the ignition key in the **NORMAL MOWING** position, the engine will automatically shut off if the PTO (Blade Engage) lever is moved into the engaged (ON) position with the shift lever in Reverse.



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

Reverse Caution Mode



WARNING: Use extreme caution while operating the tractor in the **REVERSE CAUTION MODE**. Always look down and behind before and while backing. Do not operate the tractor when children or others are around. Stop the tractor immediately if someone enters the area.

The **REVERSE CAUTION MODE** position of the key switch module allows the tractor to be operated in reverse with the blades (PTO) engaged.

IMPORTANT: *Mowing in reverse is not recommended.*

To use the **REVERSE CAUTION MODE**:

IMPORTANT: *The operator MUST be seated in the tractor seat.*

1. Start the engine (Refer to **Starting the Engine** page 15 of this Operator's Manual for detailed instructions).
2. Turn the key from the **NORMAL MOWING** (Green) position to the **REVERSE CAUTION MODE** (Yellow) position of the key switch module. See Figure 10.

3. Depress the **REVERSE PUSH BUTTON** (Orange, Triangular Button) at the top, right corner of the key switch module. The red indicator light at the top, left corner of the key switch module will be **ON** while activated. See Figure 10.
4. Once activated (indicator light **ON**), the tractor can be driven in reverse with the cutting blades (PTO) engaged.
5. Always look down and behind before and while backing to make sure no children are around.
6. After resuming forward motion, return the key to the **NORMAL MOWING** position.

IMPORTANT: The **REVERSE CAUTION MODE** will remain activated until:

- a. The key is placed in either the **NORMAL MOWING** position or **STOP** position.
- b. The operator engages the parking brake by fully depressing the brake pedal and holding it down while gently pushing the parking brake button inward.

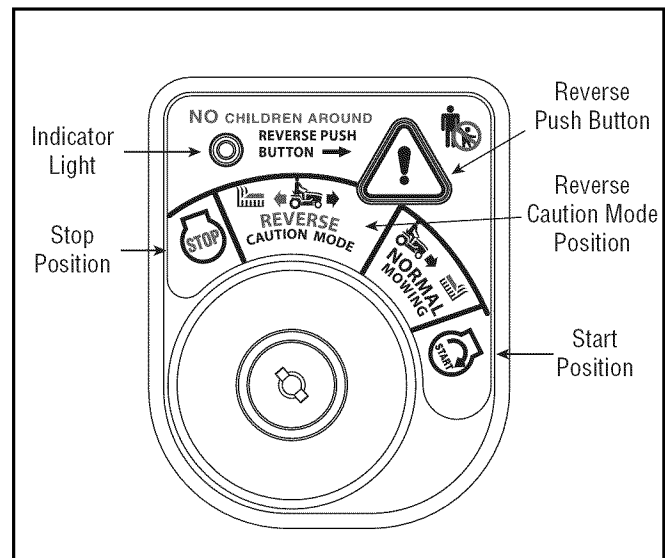


Figure 10

Engaging the Parking Brake

To engage the parking brake:

- Fully depress the brake pedal and hold it down with your foot.
- Move the parking brake lever all the way down and into the ON position.
- Release the brake pedal to allow the parking brake to engage.

To release the parking brake:

- Depress the brake pedal and move the parking brake lever out of the ON position and into the OFF position.



WARNING

AVOID SERIOUS INJURY OR DEATH

- GO UP AND DOWN SLOPES, NOT ACROSS.
- AVOID SUDDEN TURNS.
- DO NOT OPERATE THE UNIT WHERE IT COULD SLIP OR TIP.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE(S) AND BACK DOWNHILL SLOWLY.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN, EVEN WITH BLADES OFF.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- BEFORE LEAVING OPERATOR'S POSITION, DISENGAGE BLADE(S), PLACE THE SHIFT LEVER IN NEUTRAL, ENGAGE BRAKE LOCK, SHUT ENGINE OFF AND REMOVE KEY.

READ OPERATOR'S MANUAL

Setting the Cutting Height

Select the height position of the cutting deck by placing the deck lift lever in any of the five different cutting height notches on the right side of the fender. Then adjust the deck wheels, if so equipped, so that they are between ¼-inch and ½-inch above the ground when the tractor is on a smooth, flat surface such as a driveway.



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

NOTE: *On models so equipped, the deck wheels are an anti-scalp feature of the deck and are not designed to support the weight of the cutting deck.*

Refer to **Leveling the Deck** on page 18 of this manual for more detailed instructions regarding various deck adjustments.

Starting the Engine



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

NOTE: *Refer to the **TRACTOR SET-UP** on page 8 of this manual for Gasoline and Oil fill-up instructions.*

- Insert the tractor key into the ignition switch.
- Place the PTO (Blade Engage) lever in the disengaged (OFF) position.
- Engage the tractor's parking brake.
- Activate the choke control.
- Turn the ignition key clockwise to the START position. After the engine starts, release the key. It will return to the NORMAL MOWING position.

IMPORTANT: 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.

- After the engine starts, deactivate the choke control and place the throttle control in the FAST position.

NOTE: *Do NOT leave the throttle control in the CHOKE position while operating the tractor. Doing so will result in a "rich" fuel mixture and cause the engine to run poorly.*

Stopping the Engine



WARNING: If you strike a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before restarting and operating

- If the blades are engaged, place the PTO (Blade Engage) lever in the disengaged (OFF) position.
- Turn the ignition key counterclockwise to the STOP position.
- Remove the key from the ignition switch to prevent unintended starting.

Driving The Lawn Tractor



WARNING: Always look down and behind before and while traveling in reverse to avoid a back-over accident.



WARNING: Before leaving the operator's position. Always place the PTO (blade engage) lever in the disengaged (PTO OFF) position, place speed control lever in neutral, set parking brake, stop engine and remove key to prevent unintended starting.

- Move throttle control lever to full throttle.

NOTE: *Always operate the tractor with the throttle control lever in the FAST (rabbit) position for the most efficient use of the cutting deck or other (separately available) attachments.*

- Release the parking brake by depressing the brake pedal.
- Position the speed control lever in desired position. The further forward or rearward that the lever is moved, the faster the tractor will travel.

IMPORTANT: Do NOT attempt to change the direction of travel when the tractor is in motion. Always bring the tractor to a **complete** stop before moving the speed control lever from forward to reverse or vice versa. Failure to do so could result in serious damage to your tractor's transmission.

IMPORTANT: First-time operators should use slower speeds. Become completely familiar with the tractor's operation and controls before operating the tractor in at higher speed.

- The lawn tractor is brought to a stop by depressing the brake pedal.
- Set the parking brake by fully depressing the brake pedal and keeping it depressed while placing the parking brake lever in the ON position. Release the brake pedal to allow the parking brake to engage.



WARNING: Before leaving the operator's position for any reason, disengage the blades, place the speed control lever in neutral, engage the parking brake, shut engine off and remove the key.

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

- Place the speed control lever in **N** (neutral),
- Engage the parking brake,
- 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.

Driving On Slopes

Refer to the **SLOPE GAUGE** on page 7 to help determine slopes where you may operate the tractor safely.



WARNING: Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). The tractor could overturn and cause serious injury.

- Mow up and down slopes, **NEVER** across.
- Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Avoid turns when driving on a slope. If a turn must be made, turn down the slope. Turning up a slope greatly increases the chance of a roll over.
- Avoid stopping when driving up a slope. If it is necessary to stop while driving up a slope, start up smoothly and carefully to reduce the possibility of flipping the tractor over backward.

Using the Deck Lift Lever

To raise the cutting deck, move the deck lift lever to the left, then place it in the notch best suited for your application. Refer to **Setting The Cutting Height** earlier in this section.

Engaging the Blades

Engaging the PTO (Blade Engage) transfers power to the cutting deck or other (separately available) attachments. To engage the blades, proceed as follows:

- Move the throttle control lever to the **FAST** (rabbit) position.
- Grasp the PTO (Blade Engage) lever and position it all the way forward into the engaged (**ON**) position.
- Keep the throttle lever in the **FAST** (rabbit) position for the most efficient use of the cutting deck or other (separately available) attachments

IMPORTANT: The engine will automatically shut off if the PTO is engaged with the shift lever in position for reverse travel with the ignition key in the **NORMAL MOWING** position. Refer to **Safety Interlock Switches** on page 14.

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.

The following information will be helpful when using the cutting deck with your tractor.



WARNING: Plan your mowing pattern to avoid discharge of materials toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.

- Never mow at the tractor's fastest ground speed. Maintaining a slower ground speed will result in an optimal cut.
- 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.
- Do not cut the grass too short. Short grass invites weed growth and yellows quickly in dry weather.
- Mowing should always be done with the throttle control lever to the **FAST** (rabbit) position.
- Under heavier conditions it may be necessary to go back over the area a second time to get a clean cut.
- Do **NOT** attempt to mow heavy brush and weeds and extremely tall grass. Your tractor is designed to mow lawns, **NOT** clear brush.
- Keep the blades sharp and replace the blades when worn. Refer to **Cutting Blades** on page 24 of this manual for proper blade sharpening instructions.

Mulching

Some, **NOT ALL**, models come equipped with a mulch kit which incorporates special blades, already standard on your tractor, in a process of recirculating grass clippings repeatedly beneath the cutting deck. The ultra-fine clippings are then forced back into the lawn where they act as a natural fertilizer. Observe the following points for the best results when mulching.

- Never attempt to mulch if the lawn is damp. Wet grass tends to stick to the underside of the cutting deck preventing proper mulching of the clippings.
- Do **NOT** attempt to mulch more than 1/3 the total height of the grass or approximately 1-1/2 inches. Doing so will cause the clippings to clump up beneath the deck and not be mulched effectively.
- Maintain a slow ground speed to allow the grass clippings more time to effectively be mulched.
- Always position the throttle control lever in the FAST (rabbit) position and allow it to remain there while mowing. Failing to keep the engine at full throttle places strain on the tractor's engine and does not allow the blades to properly mulch grass.

NOTE: Do **NOT** remove the discharge chute when operating the mower with the mulch kit installed.

To operate the cutting deck without mulching, on models so equipped, simply remove the mulch plug by unthreading the plastic wing nut which secures it to the cutting deck. This will allow the clippings to discharge out the side. See Figure 11.

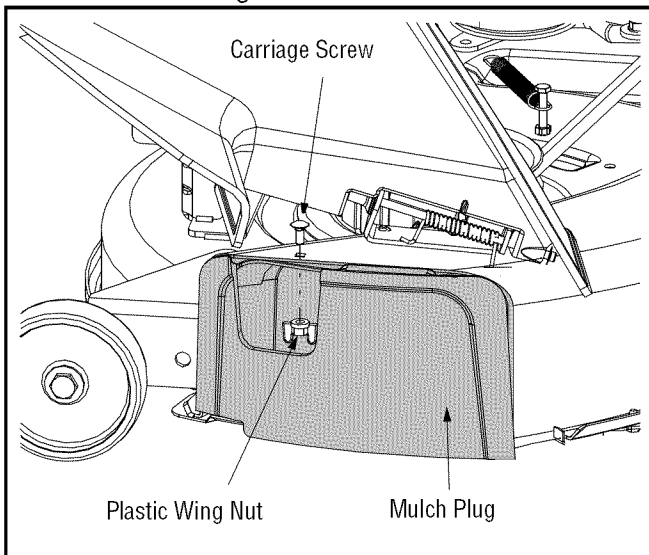


Figure 11

Moving The Tractor Manually

Your tractor's transmission is equipped with a hydrostatic relief valve for occasions when it is necessary to move the tractor manually. Activating this valve forces the fluid in the transmission to bypass its normal route, allowing the rear tires to "freewheel." To engage the hydrostatic relief valve, proceed as follows:

- Locate the hydrostatic bypass rod in the rear of the tractor. See Figure 12.
- Pull the hydrostatic bypass rod outward, then down and to the left, to lock it in place.

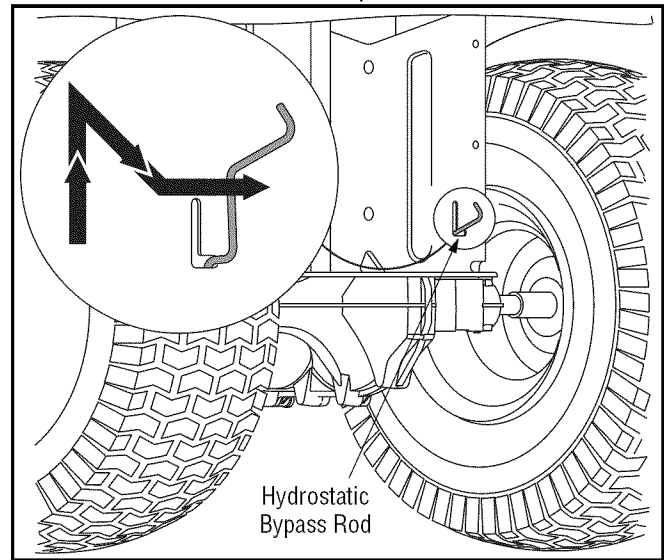


Figure 12

NOTE: The transmission will **NOT** engage when the hydrostatic bypass rod is pulled out. Return the rod to its normal position prior to operating the tractor.

IMPORTANT: Never attempt to move the tractor manually without first engaging the hydrostatic relief valve. Doing so will result in serious damage to the tractor's transmission.

Headlights

On some models, the lamps are ON whenever the tractor's engine is running. On other models, the lamps are ON whenever the ignition key is moved out of the STOP position.

On all models, the lamps turn OFF when the ignition key is moved to the STOP position.

SECTION 6: MAKING ADJUSTMENTS



WARNING: Never attempt to make any adjustments while the engine is running, except where specified in the operator's manual.

Leveling the Deck

NOTE: Check the tractor's tire pressure before performing any deck leveling adjustments. Refer to *Tires* on page 23 for information regarding tire pressure.

Front To Rear

The front of the cutting deck is supported by a stabilizer bar that can be adjusted to level the deck from front to rear. The front of the deck should be between 1/4-inch and 3/8-inch lower than the rear of the deck. Adjust if necessary as follows:

- With the tractor parked on a firm, level surface, place the deck lift lever in the top notch (highest position) and rotate the blade nearest the discharge chute so that it is parallel with the tractor.
- 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 1/4" and 3/8" less than the second measurement. Determine the approximate distance necessary for proper adjustment and proceed, if necessary.
- Locate the jam nut and lock nut found on the front side of the stabilizer bracket. See Figure 14. After loosening the jam nut:
Tighten the lock nut to raise the front of the deck;
Loosen the lock nut to lower the front of the deck.

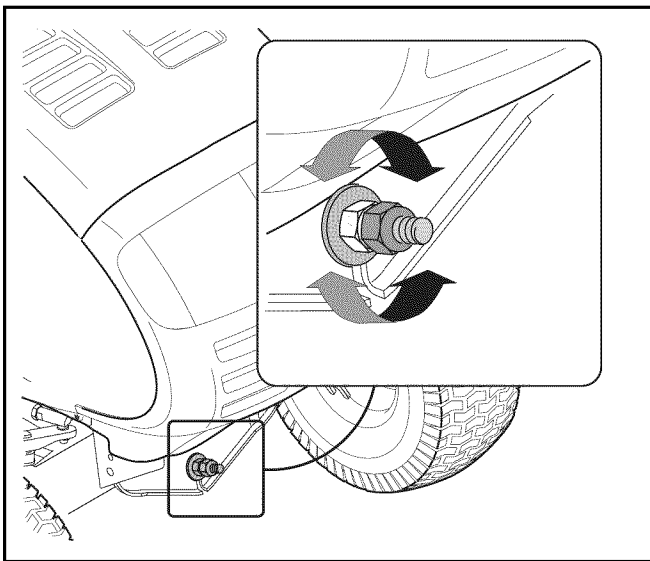


Figure 13

- Retighten the jam nut loosened earlier after proper adjustment is achieved.

Side to Side

If the cutting deck appears to be mowing unevenly, a side to side adjustment can be performed. Adjust if necessary as follows:

- With the tractor parked on a firm, level surface, place the deck lift lever in the top notch (highest position) and rotate both blades so that they are perpendicular with the tractor.
- 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.
- Loosen, but do NOT remove, the hex screw on the left deck hanger bracket. See Figure 14.

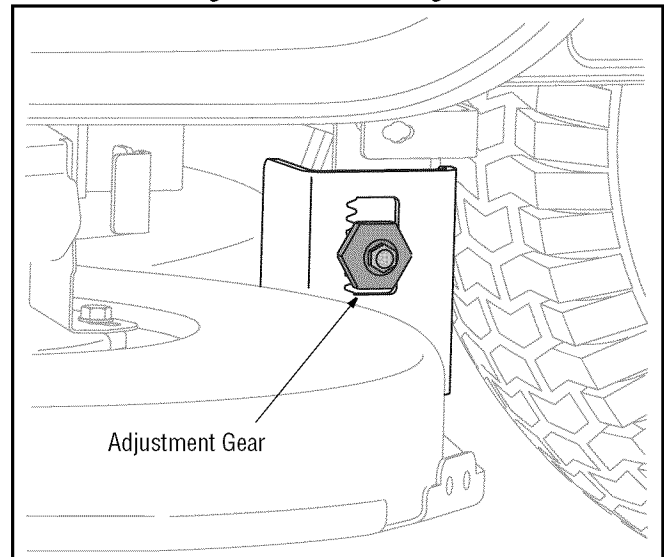


Figure 14

- Balance the deck by using a wrench to turn the adjustment gear (found immediately behind the hex cap screw just loosened) clockwise/up or counterclockwise/down.
- The deck is properly balanced when both blade tip measurements taken earlier are equal.
- Retighten the hex cap screw on the left deck hanger bracket when proper adjustment is achieved.

Standard Adjustment Seat

To adjust the position of the seat, loosen the two hex screws on the bottom of the seat. See Figure 15. Slide the seat forward or backward as desired. Retighten the two screws.

Quick Adjustment Seat (if so equipped)

To adjust the position of the seat, move the seat adjustment lever (located under the seat) to the left and slide the seat forward or backwards. See Figure 17. Make sure seat is locked into one of the six adjustment positions before operating the lawn tractor.

Knob Adjustment Seat (if so equipped)

To adjust the position of the seat, loosen the two knobs on the bottom of the seat. See Figure 16. Slide the seat forward or backward as desired. Retighten the two knobs.

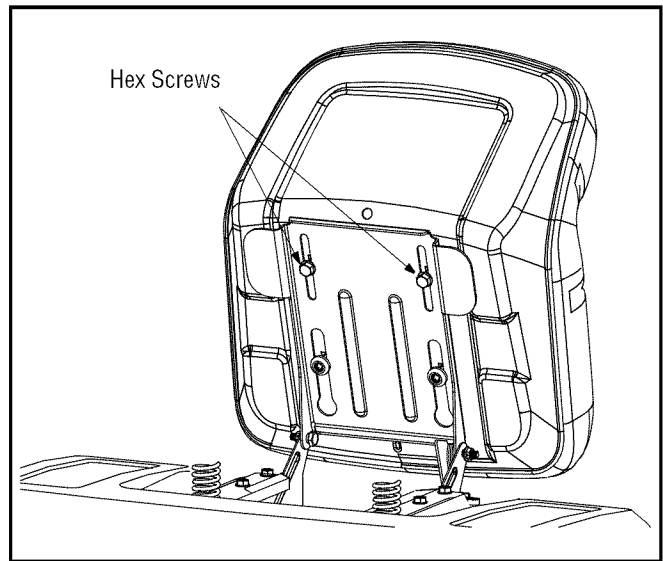


Figure 15

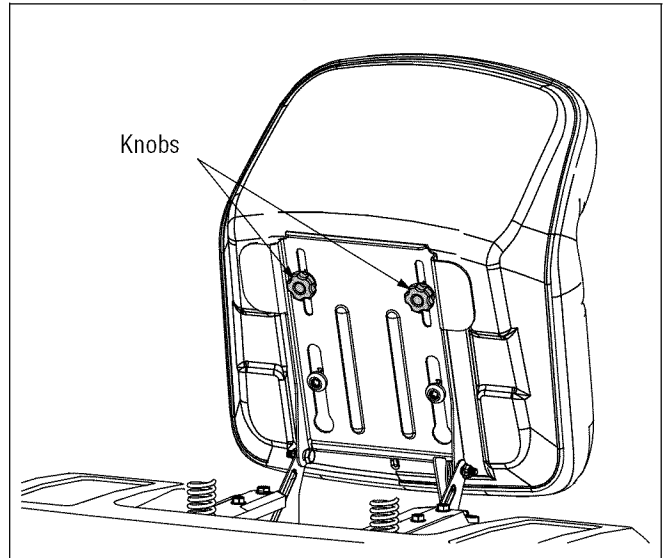


Figure 16

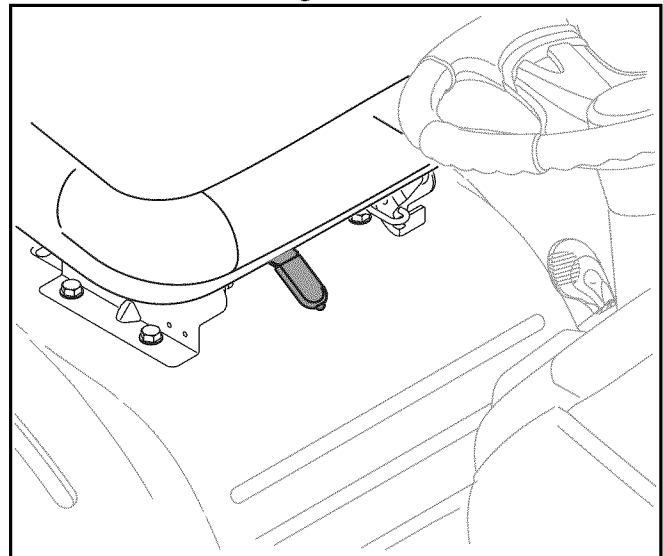


Figure 17

Parking Brake Adjustment



WARNING: Never attempt to adjust the brakes while the engine is running. Always disengage PTO, move speed control lever into neutral position, stop engine and remove key to prevent unintended starting.

If the tractor does not come to a complete stop when the brake pedal is completely depressed, or if the tractor's rear wheels can roll with the parking brake applied (and the hydrostatic bypass rod pulled out), the brake is in need of adjustment. The brake disc can be found on the right side of the transmission in the rear of the tractor. Adjust if necessary as follows:

NOTE: A replacement cotter pin (part no. 714-0111) is needed to complete this adjustment. Have one on hand before proceeding.

- Looking at the transmission from the right side of the tractor, locate the compression spring and brake disc. See Figure 18.

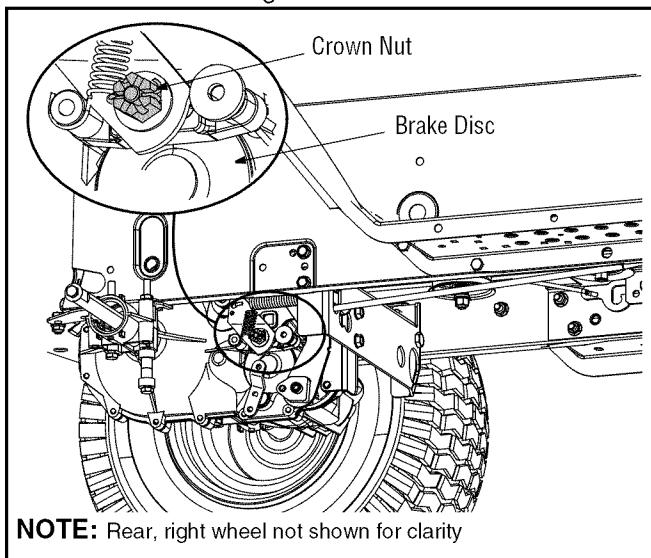


Figure 18

- Carefully remove the cotter pin from the crown nut on the right side of the brake assembly.
- Using a feeler gauge, check the gap between the brake disc and the brake puck. Proper gap is .011".
- Tighten the crown nut until the proper gap is achieved.
- Insert the replacement cotter pin into the crown nut.

Drag Link Adjustment

If the tractor turns tighter in one direction than the other, or if either the drag link and ball joint are being replaced due to damage or wear, the drag link may need to be adjusted. To do so, proceed as follows:

- Place the steering wheel in position for straight-ahead travel.
- Remove the lock nut which secures the ball joint to the steering arm. See Figure 19.

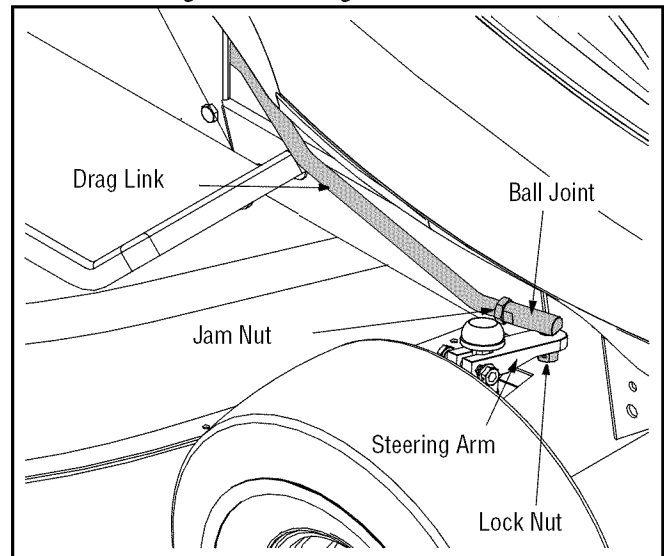


Figure 19

- Lift the ball joint out of the steering arm and reposition both front tires for straight-ahead travel.
- Loosen the jam nut (See Figure 19) and thread the ball joint either inward or outward until it aligns with the hole in the steering arm.
- Confirm that both the steering wheel and the front tires are still positioned for straight-ahead travel before reinserting the ball joint into the steering arm and securing it with the lock nut removed earlier.
- Re-tighten the jam nut loosened earlier.

SECTION 7: MAINTAINING YOUR LAWN TRACTOR



WARNING: Before performing any maintenance or repairs, disengage PTO, move shift lever into neutral position, set parking brake, stop engine and remove key to prevent unintended starting.

Engine

Refer to the engine manufacturer's Operator/Owner Manual for engine maintenance instructions.

Check **engine oil level** before each use as instructed in the **engine manufacturer's** Operator/Owner Manual packed with your unit. **Follow the instructions carefully.**

Changing Engine Oil

NOTE: Depending on the engine model found on your tractor, it may be necessary to remove the tractor's side panel in order to replace the oil filter (if so equipped).

Changing Engine Oil

For draining oil from the engine's crankcase of select model tractors, a plastic oil drain sleeve is packed with this Operator's Manual. To drain the oil, proceed as follows:

- Unscrew the oil fill cap and remove the dipstick from the oil fill tube.
- Snap the small end of oil drain sleeve onto the oil sump. See Figure 20.

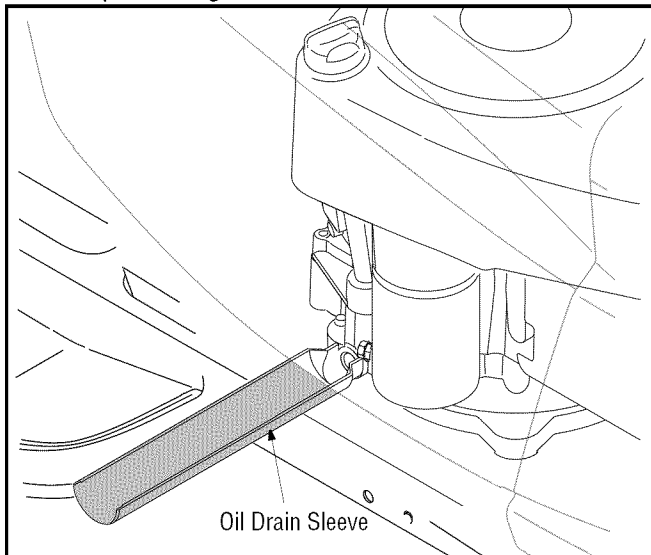


Figure 20

- Remove drain plug and drain oil into a suitable container with a capacity of no less than 64 oz.

- Service the **oil filter** (if so equipped) as instructed in the separate engine manufacturer's Operator/Owner Manual packed with your unit.

Perform the above steps in the opposite order after oil has finished draining.

- Refill the engine with new motor oil.

IMPORTANT: Refer to the engine manufacturer's Operator/Owner Manual packed with your unit for information regarding the quantity and proper weight of motor oil.

Air Cleaner

Service the pre-cleaner, if so equipped, and cartridge/air cleaner element as instructed in the engine manufacturer's Operator/Owner Manual packed with your unit.

Spark Plug(s)

The spark plug(s) should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season. Refer to the engine manufacturer's Operator/Owner Manual for correct plug type and gap specifications.

Lubrication



WARNING: Before lubricating, repairing, or inspecting, always disengage PTO, move shift lever into neutral position, set parking brake, stop engine and remove key to prevent unintended starting.

Engine

Lubricate the engine with motor oil as instructed in the engine manufacturer's Owner Manual packed with your unit.

Pivot Points & Linkage

Lubricate all the pivot points on the drive system, parking brake and lift linkage at least once a season with light oil.

Rear Wheels

The rear wheels should be removed from the axles once a season. Lubricate the axles and the rims well with an all-purpose grease before re-installing them.

Front Axles

Each end of the tractor's front pivot bar may be equipped with a grease fitting. Lubricate with a grease gun after every 25 hours of tractor operation.

Cleaning the Engine And Deck

Any fuel or oil spilled on the machine should be wiped off promptly. Do NOT allow debris to accumulate around the cooling fins of the engine or on any other part of the machine.

IMPORTANT: The use of a pressure washer to clean your tractor is NOT recommended. It may cause damage to electrical components, spindles, pulleys, bearings or the engine.

Deck Wash System™

A hex plug can be found on your tractor's deck surface. See Figure 21.

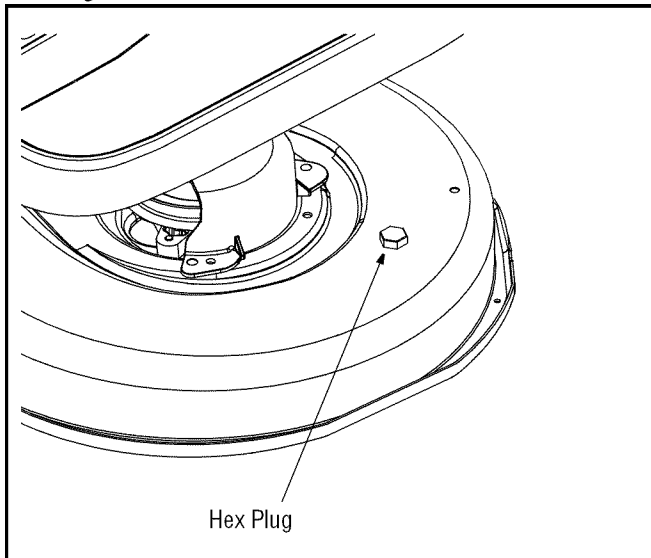


Figure 21

This plug can be replaced with a water port to be used as part of a separately-available deck wash system. Use the Deck Wash System™ to rinse grass clippings from the deck's underside and prevent the buildup of corrosive chemicals.

NOTE: Refer to page 27 for information regarding this and other separately-available attachments & accessories for your tractor.

SECTION 8: SERVICE

Cutting Deck Removal

NOTE: Models equipped with a 38-inch deck have one deck idler pulley. Models equipped with a 42-inch deck have two deck idler pulleys.

To remove the cutting deck, proceed as follows:

- Place the PTO (Blade Engage) lever in the disengaged (OFF) position.
- Engage the parking brake.
- Lower the deck by moving the deck lift lever into the bottom notch on the right fender.
- Remove the belt from around the tractor's engine pulley and idler pulley(s). Refer to **Changing the Deck Belt** on page 26 for detailed instructions.
- Looking at the cutting deck from the left side of the tractor, locate the hair pin clip that secures the deck support rod on the rear left side of the deck. See Figure 22.

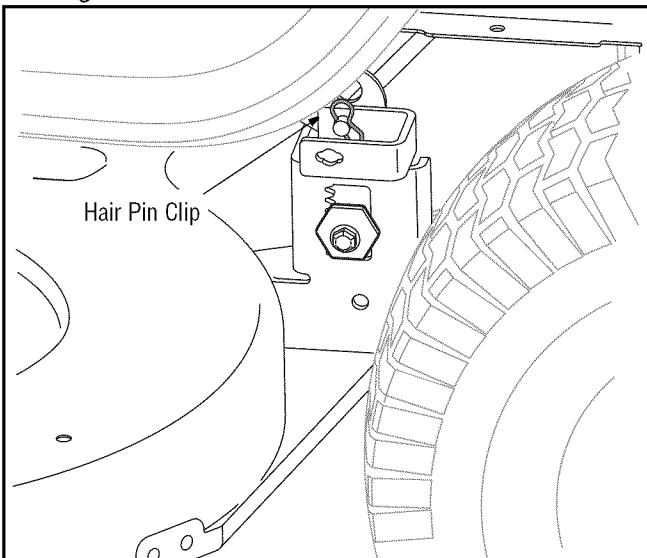


Figure 22

- Remove the hair pin clip that secures the deck support rod, and carefully remove the deck support from the deck lift arm.
- Repeat the above steps on the tractor's right side.
- Move the deck lift lever into the top notch on the right fender to raise the deck lift arms up and out of the way.
- Carefully remove the PTO cable from the rear of the cutting deck by removing the hair pin clip which secures it. Proceed to remove the spring from the deck idler bracket. See Figure 23.

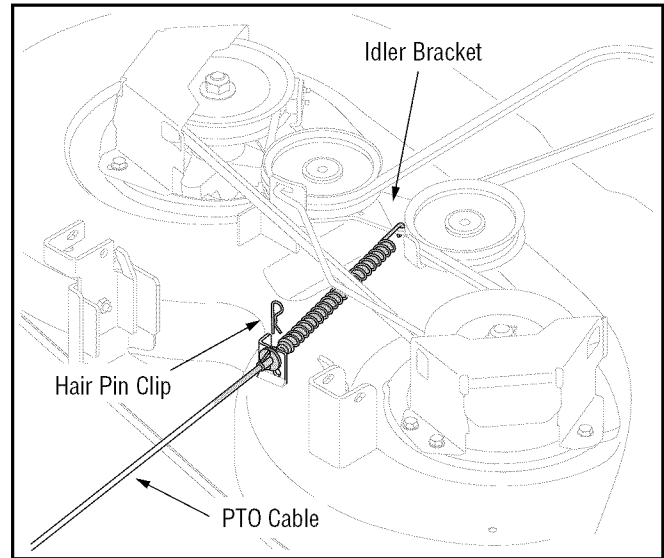


Figure 23

- Gently slide the cutting deck toward the front of the tractor allowing the hooks on the deck to release themselves from the deck stabilizer rod.
- Gently slide the cutting deck (from the right side) out from underneath the tractor.

Tires



WARNING: Never exceed the maximum inflation pressure shown on the sidewall of the tire.

The recommended operating tire pressure is:

- Approximately 10 psi for the rear tires
- Approximately 14 psi for the front tires

IMPORTANT: Refer to the tire sidewall for exact tire manufacturer's recommended or maximum psi. Do not overinflate. Uneven tire pressure could cause the cutting deck to mow unevenly.

Changing the Transmission Belt

NOTE: Several components must be removed and special tools (i.e. air/impact wrench) used in order to change the tractor's drive belt. See an authorized MTD Service Dealer to have your drive belt replaced or phone Customer Support as instructed on page 2 for information on ordering an MTD Service Manual.

Battery

The battery is sealed and is maintenance-free. Acid levels cannot be checked.

- Always keep the battery cables and terminals clean and free of corrosive build-up.
- After cleaning the battery and terminals, apply a light coat of petroleum jelly or grease to both terminals.
- Always keep the rubber boot positioned over the positive terminal to prevent shorting.

IMPORTANT: If removing the battery for any reason, disconnect the NEGATIVE (Black) wire from its terminal first, followed by the POSITIVE (Red) wire. When re-installing the battery, always connect the POSITIVE (Red) wire its terminal first, followed by the NEGATIVE (Black) wire. Be certain that the wires are connected to the correct terminals; reversing them could change the polarity and result in damage to your engine's alternating system.

Charging

If the tractor has not been put into use for an extended period of time, charge the battery with an automotive-type 12-volt charger for a minimum of **one hour at six amps**.



WARNING: Batteries give off an explosive gas while charging. Charge battery in a well ventilated area and keep away from an open flame or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.

Jump Starting



WARNING: When removing or installing the battery, follow these instructions to prevent the screwdriver from shorting against the frame.

IMPORTANT: Never jump your tractor's dead battery with the battery of a running vehicle.

- Connect end of one jumper cable to the positive terminal of the good battery, then the other end to the positive terminal of the dead battery.
- Connect the other jumper cable to the negative terminal of the good battery, then to the **frame of the unit with the dead battery**.



WARNING: Failure to use this procedure could cause sparking, and the gas in either battery could explode.

Cleaning

Clean the battery by removing it from the tractor and washing with a baking soda and water solution. If necessary, scrape the battery terminals with a wire brush to remove deposits. Coat terminals and exposed wiring with grease or petroleum jelly to prevent corrosion.

Battery Failures

Some common causes for battery failure are:

- freezing
- overcharging
- undercharging
- corroded connections

These failures are NOT covered by your tractor's warranty.

Fuse

One 20 AMP fuse is installed in your tractor's wiring harness to protect the tractor's electrical system from damage caused by excessive amperage.

If the electrical system does not function, or your tractor's engine will not crank, first check to be certain that the fuse has not blown. It can be found under the hood mounted behind the dash panel on the right side.



WARNING: Always use a fuse with the same amperage capacity for replacement.

Cutting Blades



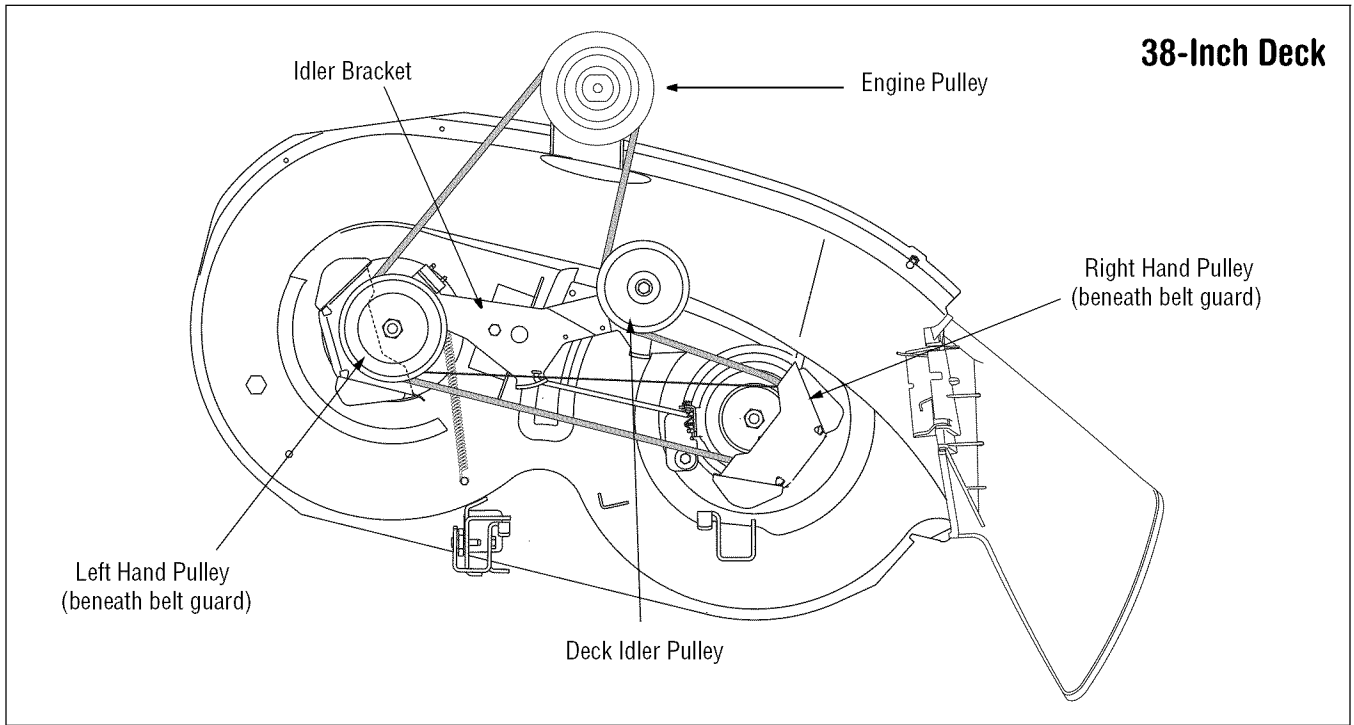
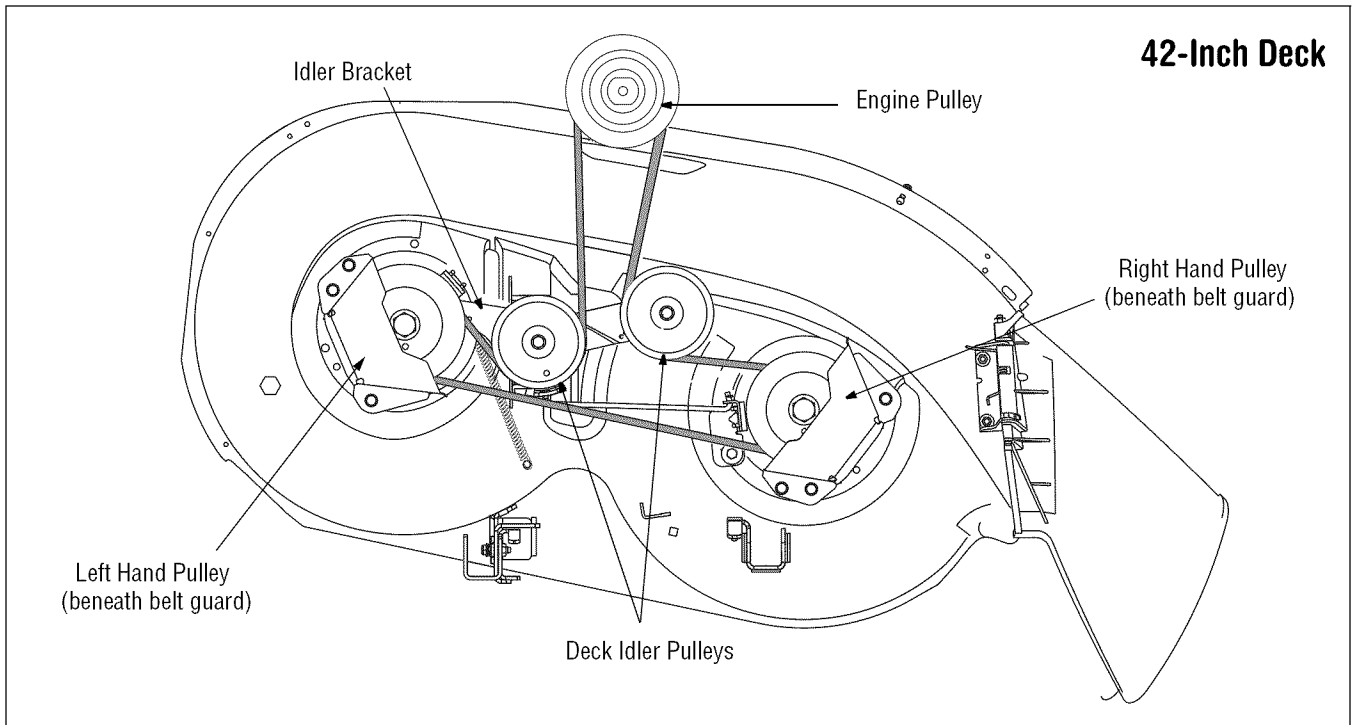
WARNING: Be sure to shut the engine off, remove ignition key, disconnect the spark plug wire(s) and ground against the engine to prevent unintended starting before removing the cutting blade(s) for sharpening or replacement. Protect your hands by using heavy gloves or a rag to grasp the cutting blade.



WARNING: Periodically inspect the blade spindles for cracks or damage, especially if you strike a foreign object. Replace immediately if damaged.

The blades may be removed as follows.

- Remove the deck from beneath the tractor, (refer to **Cutting Deck Removal** on page 23) then gently flip the deck over to expose its underside.
- Place a block of wood between the center deck housing baffle and the cutting blade to act as a stabilizer. See Figure 24.
- Use a 15/16" wrench to remove the hex flange nut that secures the blade to the spindle assembly. See Figure 24.



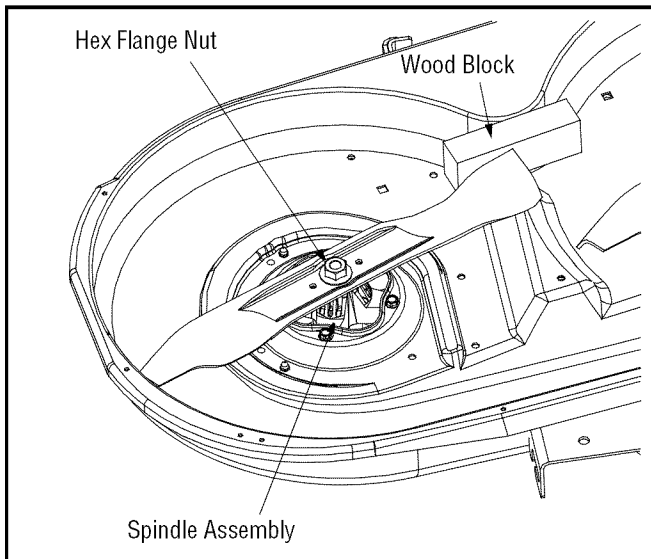


Figure 24

- To properly sharpen the cutting blades, remove equal amounts of metal from both ends of the blades along the cutting edges, parallel to the trailing edge, at a 25° to 30° angle. See Figure 25.

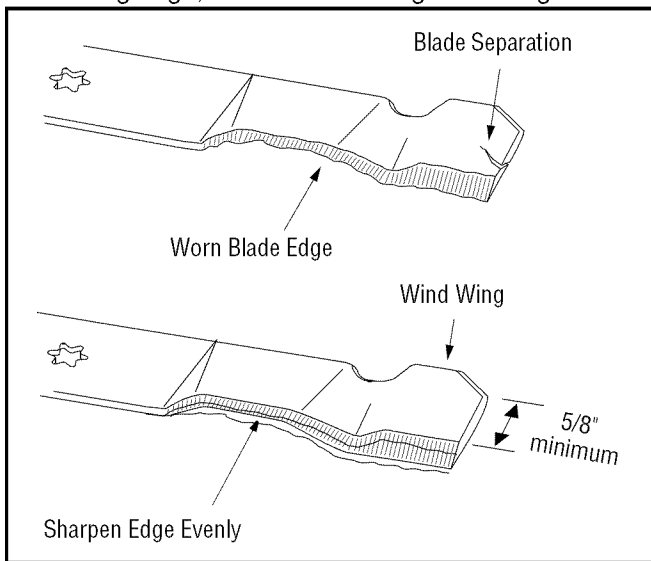


Figure 25

IMPORTANT: If the cutting edge of the blade has already been sharpened to within 5/8" of the wind wing radius, or if any metal separation is present, replace the blades with new ones. See Figure 25.

It is important that each cutting blade edge be ground equally to maintain proper blade balance.

A poorly balanced blade will cause excessive vibration and may cause damage to the tractor and result in personal injury. The blade can be tested by balancing it on a round shaft screwdriver. Grind metal from the heavy side until it balances evenly.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" facing the ground when the mower is in the operating position.

IMPORTANT: Use a torque wrench to tighten the blade spindle hex flange nut to between 70 foot-pounds and 90 foot-pounds.

Changing the Deck Belt



WARNING: Be sure to shut the engine off, remove ignition key, disconnect the spark plug wire(s) and ground against the engine to prevent unintended starting before removing the belt(s).

All belts on your tractor are subject to wear and should be replaced if any signs of wear are present.

IMPORTANT: The V-belts found on your tractor are specially designed to engage and disengage safely. A substitute (non-OEM) V-belt can be dangerous by not disengaging completely. For a proper working machine, use factory approved belts.

To change or replace the deck belt on your tractor, proceed as follows:

- Lower the deck by moving the deck lift lever into the bottom notch on the right fender.
- Remove the belt guards by removing the self-tapping screws that fasten them to the deck.
- Remove the belt keeper rod from around the engine pulley.
- Insert a 3/8"-drive ratchet wrench (set to *loosen*) into the square hole found in the idler bracket on the left side of the deck's surface. See Figure 26.

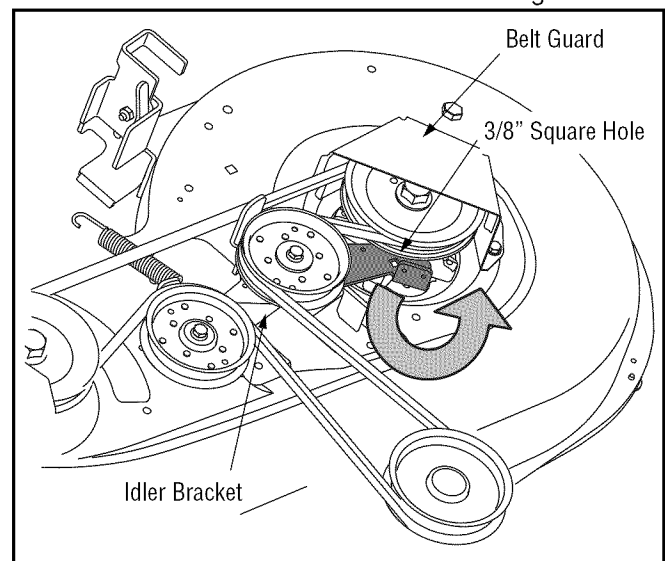


Figure 26

- Grasp the ratchet's handle and pivot it toward the front of the tractor to relieve tension on the belt.
- With belt tension relieved, **carefully remove the belt from around the left-hand spindle pulley.**

SECTION 9: OFF-SEASON STORAGE

Clean and lubricate the tractor as instructed in **Section 7: MAINTAINING YOUR LAWN TRACTOR** on page 21 of this manual before storing for an extended period.



WARNING: Drain fuel only into an approved container outdoors, away from an open flame. Allow engine to cool. Extinguish cigarettes, cigars, pipes, and other sources of ignition prior to draining fuel.

Follow the instructions in the **Service, Storage & Specifications** section of the engine manufacturer's Operator/Owner Manual for proper engine care prior to storing your tractor.



WARNING: Never store the machine or fuel container indoors where there is an open flame, spark or pilot light such as on water heater, furnace, clothes dryer or other gas appliance.

SECTION 10: ATTACHMENTS & ACCESSORIES

The following attachments and accessories are compatible for 700-Series Lawn Tractors. See the retailer from which you purchased your tractor, an authorized *MTD* Service Dealer or phone **1-800-800-7310** for information regarding price and availability.

NOTE: *Model Series 700 Lawn Tractors are NOT designed for use with any type of ground-engaging attachments (e.g. tiller or plow). Use of this type of equipment WILL void the tractor's warranty.*

MODEL	DESCRIPTION
OEM-190-116	38- and 42-inch Deck Mulch Kit
OEM-190-672	Grille Guard (mounts on front of tractor)
OEM-190-180	Twin Bagger Grass Collector
OEM-190-183	Deck Wheel Kit
OEM-190-184	Dethatcher
OEM-190-218	Rear Wheel Weights
OEM-190-658	Tire Chains
OEM-190-032	42-inch Two-stage Snow Thrower
OEM-190-833	46-inch Front Dozer Blade
490-900-0024	Deluxe Tractor Sunshade
490-900-0025	Deck Wash Kit

* Not compatible with tractors equipped with a Grass Collector

SECTION 11: TROUBLESHOOTING

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	PTO engaged. Parking brake not engaged. Spark plug wire(s) disconnected. Throttle control lever not in correct starting position. Choke not activated Fuel tank empty, or stale fuel. Blocked fuel line. Faulty spark plug. Engine flooded.	Place PTO lever in disengaged (OFF) position. Engage parking brake. Connect wire(s) to spark plug(s). Place throttle control in FAST position or CHOKE position, if present. Place the throttle control in CHOKE position or pull the CHOKE knob outward. Fill tank with clean, fresh (less than 30 days old) gas. Clean fuel line or replace fuel filter, if so equipped. Clean, adjust gap or replace plug. Crank engine with throttle in FAST position.
Engine runs erratic	Unit running with CHOKE applied. Spark plug wire(s) loose. Blocked fuel line or stale fuel. Vent in gas cap plugged. Water or dirt in fuel system. Dirty air cleaner.	Move the throttle control out of the CHOKE position or push the CHOKE knob inward. Connect and tighten spark plug wire(s). Clean fuel line; fill tank with clean, fresh (less than 30 days old) gasoline. Replace fuel filter, if so equipped. Clear vent or replace cap if damaged. Drain fuel tank. Refill with clean, fresh (less than 30 days old) gasoline. Replace air cleaner cartridge/element or clean pre-cleaner, if so equipped.
Engine overheats	Engine oil level low. Air flow restricted.	Fill crankcase with proper capacity and weight of oil. Clean grass clippings and debris from around the engine's cooling fins and blower housing.
Engine hesitates at high RPM	Spark plug(s) gap too close.	Remove spark plug(s) and reset the gap.
Idles poorly	Spark plug(s) fouled, faulty or gap too wide. Dirty air cleaner.	Replace spark plug(s). Set plug(s) gap. Replace air cleaner cartridge/element or clean pre-cleaner, if so equipped.
Excessive vibration	Cutting blade loose or unbalanced. Damaged or bent cutting blade.	Tighten blade and spindle. Balance blade. Replace blade.
Mower will not mulch grass	Engine speed too low. Wet grass. Excessively high grass. Dull blade.	Place throttle control in FAST (rabbit) position. Do not mow when grass is wet; wait until later to cut. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath. Sharpen or replace blade.
Uneven cut	Deck not balanced properly. Dull blade. Uneven tire pressure.	Perform side-to-side deck adjustment. Sharpen or replace blade. Check tire pressure in all four tires.

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MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by MTD LLC with respect to new merchandise purchased and used in the United States, its possessions and territories.

“MTD” warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator’s Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any part, accessory or attachment not approved by MTD for use with the product(s) covered by this manual will void your warranty as to any resulting damage.

Normal wear parts are warranted to be free from defects in material and workmanship for a period of thirty (30) days from the date of purchase. Normal wear parts include, but are not limited to items such as: batteries, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates, auger spiral rubber and tires.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE, through your local authorized service dealer. To locate the dealer in your area, check your Yellow Pages, or contact MTD LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-800-800-7310 or 1-330-220-4683 or log on to our Web site at www.mtdproducts.com.

This limited warranty does **not** provide coverage in the following cases:

- a. The engine or component parts thereof. These items may carry a separate manufacturer’s warranty. Refer to applicable manufacturer’s warranty for terms and conditions.
- b. Log splitter pumps, valves, and cylinders have a separate one year warranty.
- c. Routine maintenance items such as lubricants, filters, blade sharpening, tune-ups, brake adjustments, clutch adjustments, deck adjustments, and normal deterioration of the exterior finish due to use or exposure.
- d. Service completed by someone other than an authorized service dealer.

- e. MTD does not extend any warranty for products sold or exported outside of the United States, its possessions and territories, except those sold through MTD’s authorized channels of export distribution.
- f. Replacement parts that are not genuine MTD parts.
- g. Transportation charges and service calls.

No implied warranty, including any implied warranty of merchantability of fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind MTD. During the period of the warranty, the exclusive remedy is repair or replacement of the product as set forth above.

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sale. MTD shall not be liable for incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement lawn care services or for rental expenses to temporarily replace a warranted product.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. **Alteration of safety features of the product shall void this warranty.** You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser or to the person for whom it was purchased as a gift.

HOW STATE LAW RELATES TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

IMPORTANT: Owner must present Original Proof of Purchase to obtain warranty coverage.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019; Phone: 1-800-800-7310, 1-330-220-4683