

ASSEMBLY

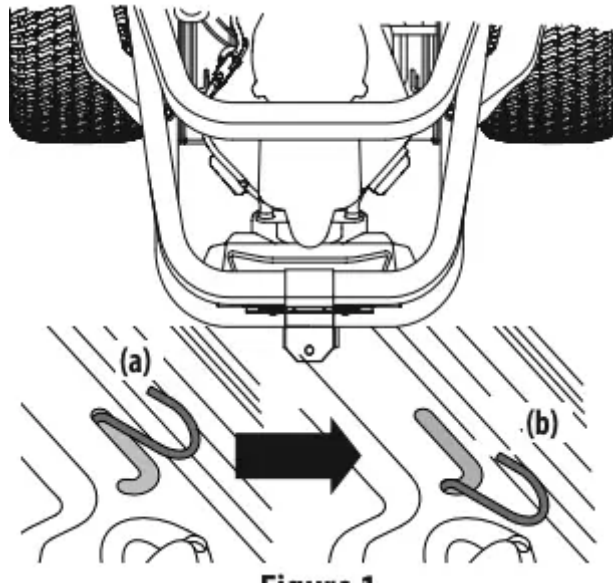
Note: This Operator's Manual covers several models. Tractor features may vary by model. Not all features in this manual are applicable to all tractor models and the tractor depicted may differ from yours.

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.

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.

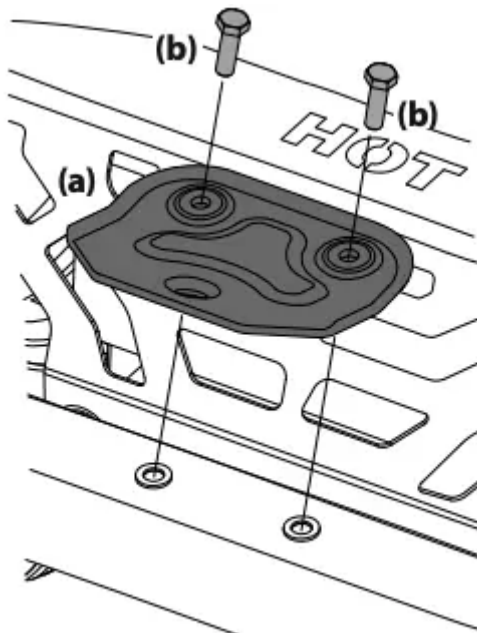


Figure 2

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).

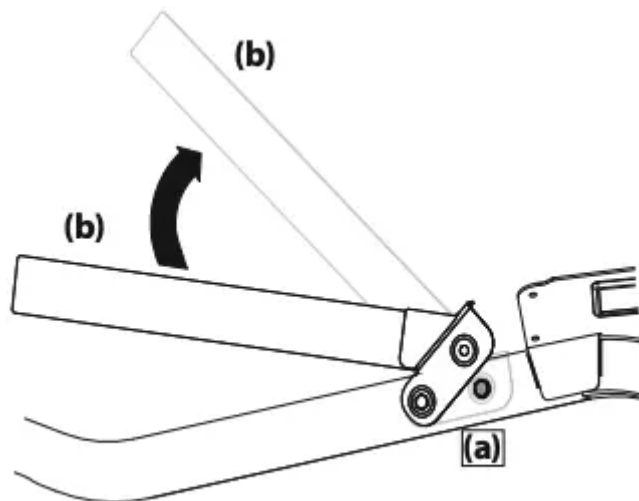


Figure 3

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.

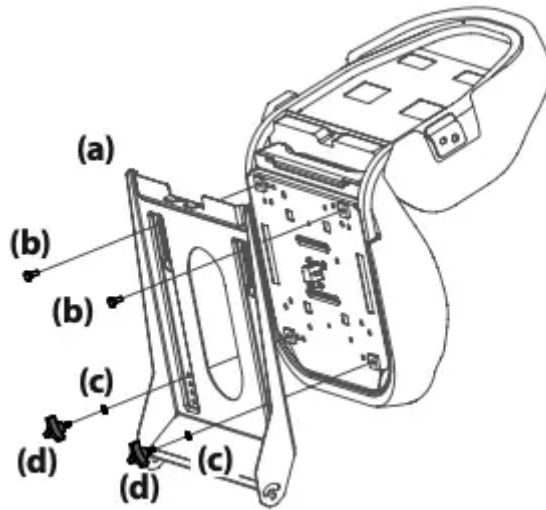


Figure 4

b. For a Lever Adjust seat use flange lock nuts (a) and flat washers (b). See Figure 5.

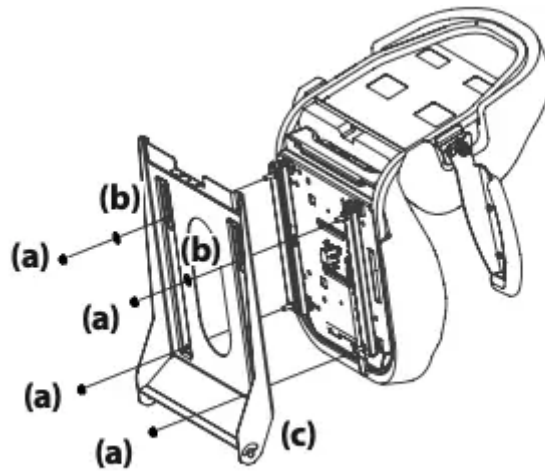


Figure 5

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.

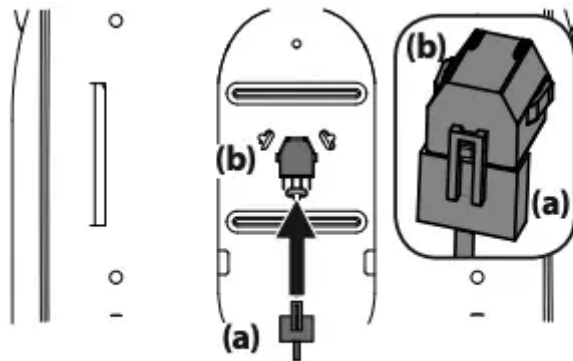


Figure 6

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

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:

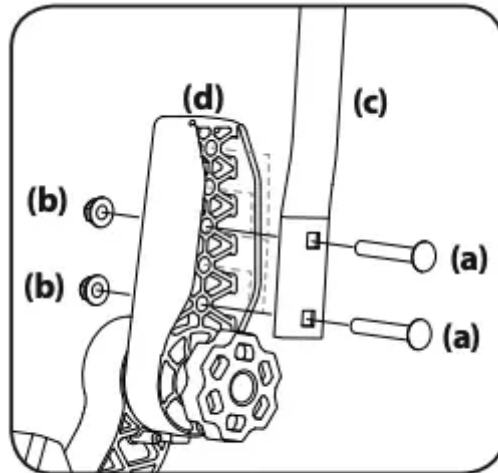


Figure 7

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.

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

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.

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

1. Rotate the knob (a) counterclockwise 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.

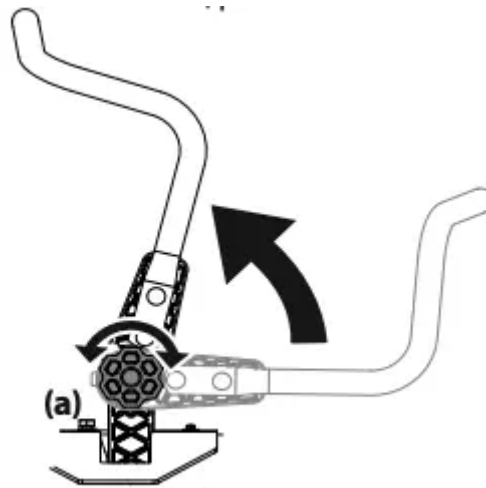


Figure 8

Lower Deck Discharge Chute Deflector

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

42" Deck Models

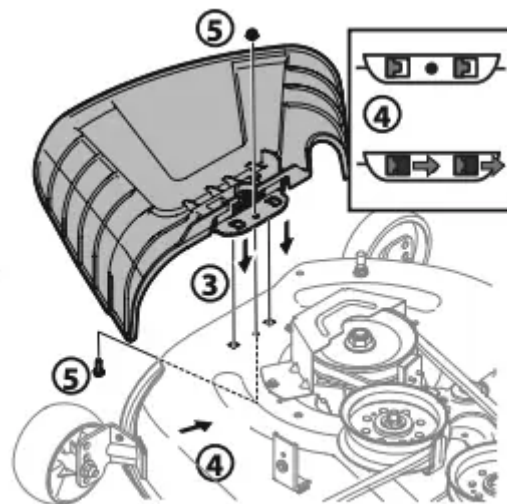


Figure 9

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."

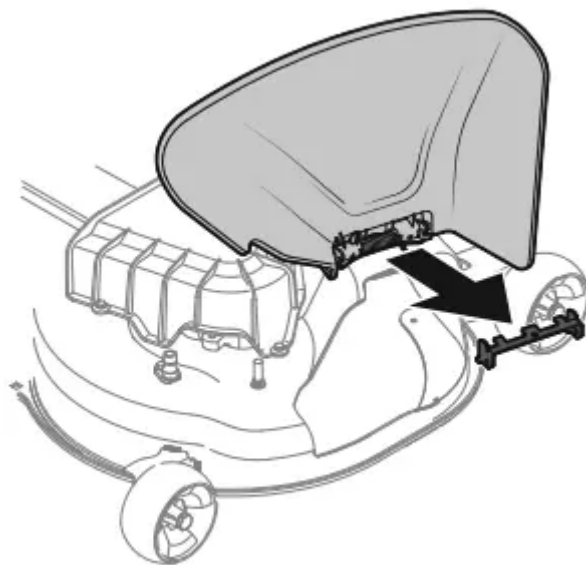


Figure 10

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.

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.

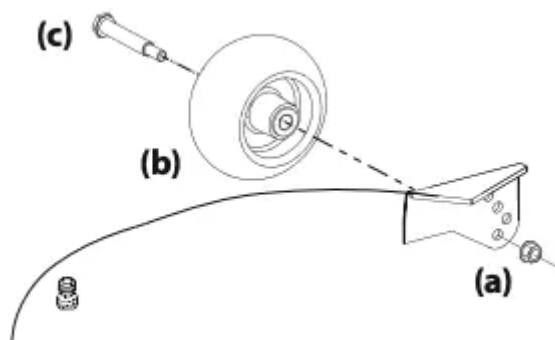


Figure 11

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 ¼" (6.35mm) and ½" (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 ¼ - ½" (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.

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. (-).

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.

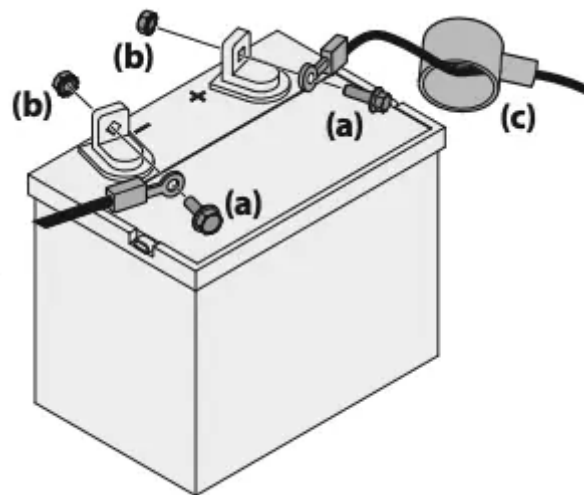


Figure 12

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.

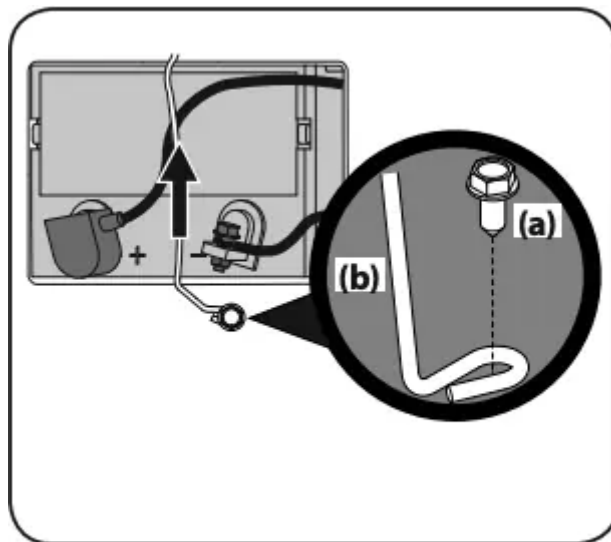


Figure 13

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.

Charging the Battery

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

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.

- 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.

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 14

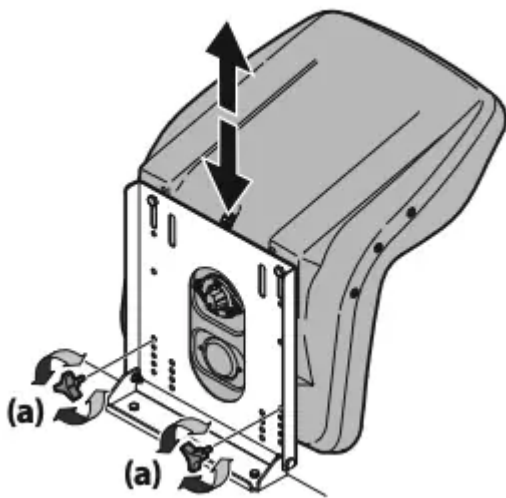


Figure 15

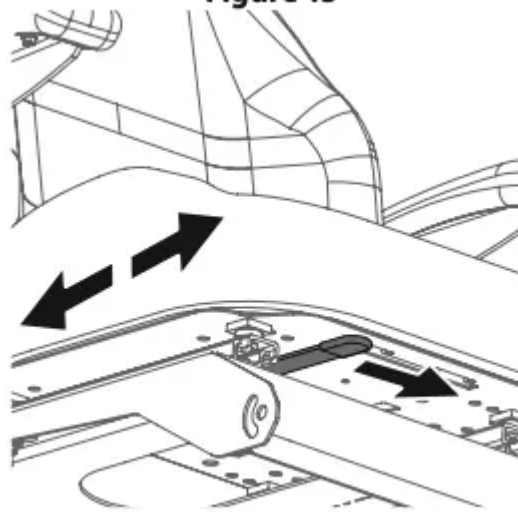


Figure 16

OPERATION

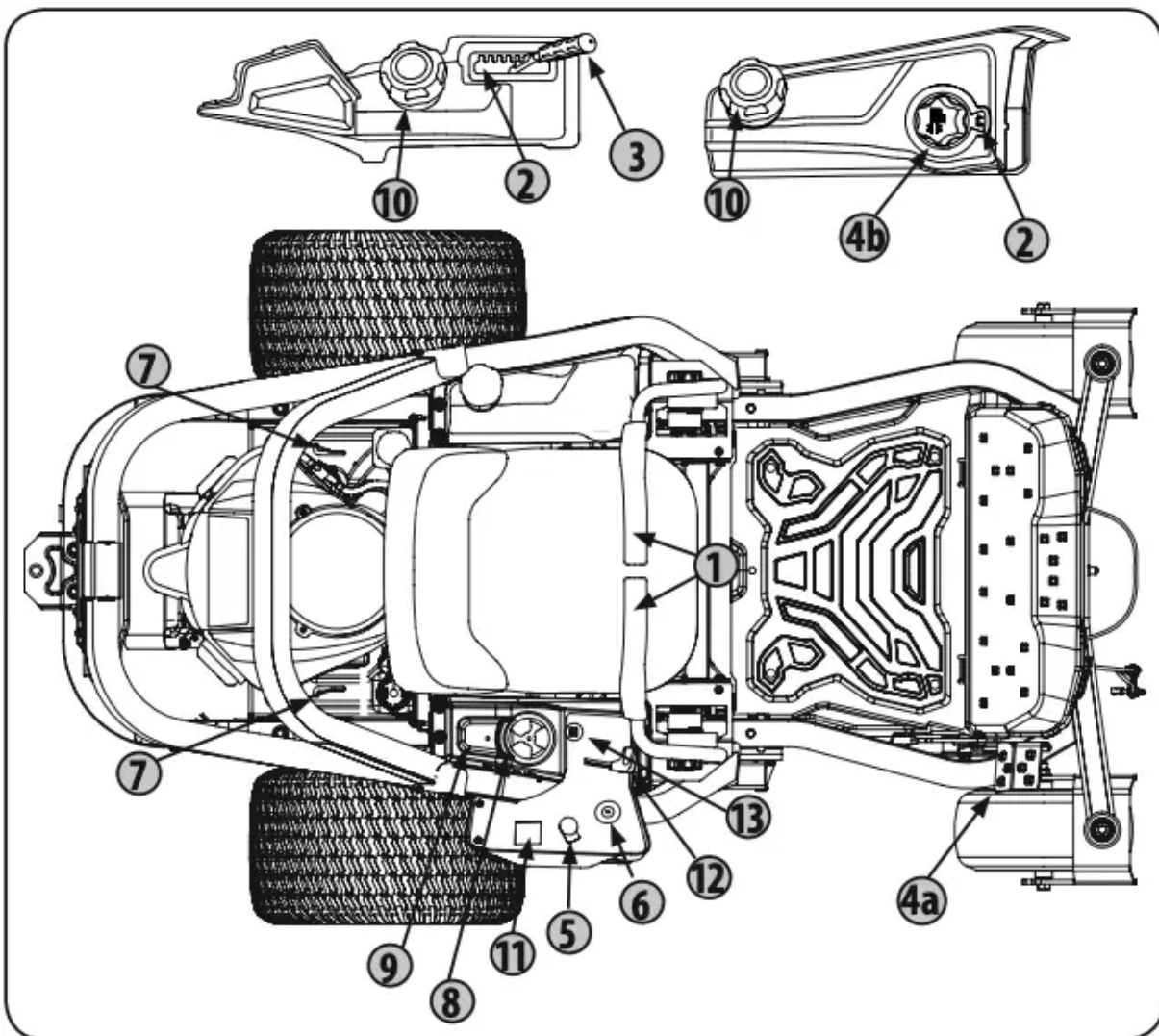


Figure 15

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 tractors 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 tractors 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.



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

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

8 Cup Holder

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

9 Storage Tray

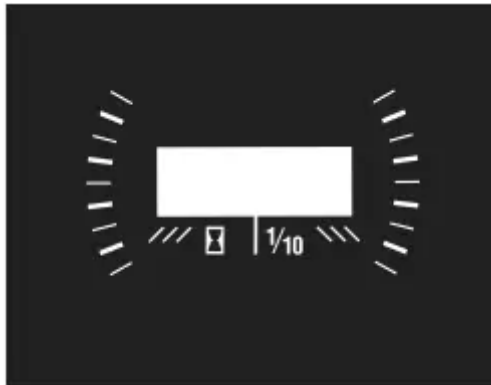
The storage tray is located to the rear of the console.

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

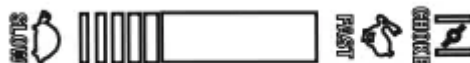
Note: When set in a given position, a uniform engine speed will be maintained.

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 ½" socket end. See the Product Care section for more information on multi-tool (a) usage. See Figure 16.

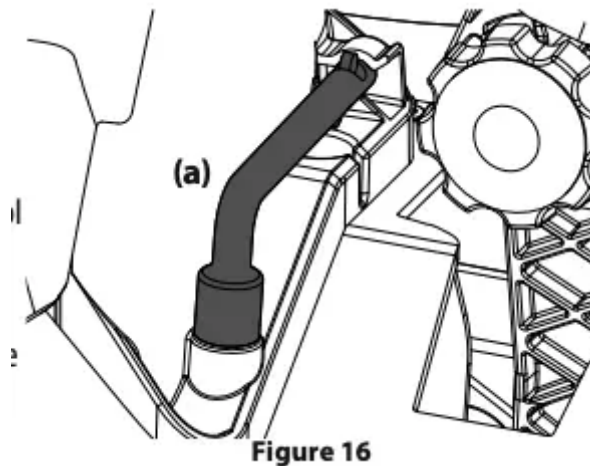


Figure 16

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

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.

Starting the Engine

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

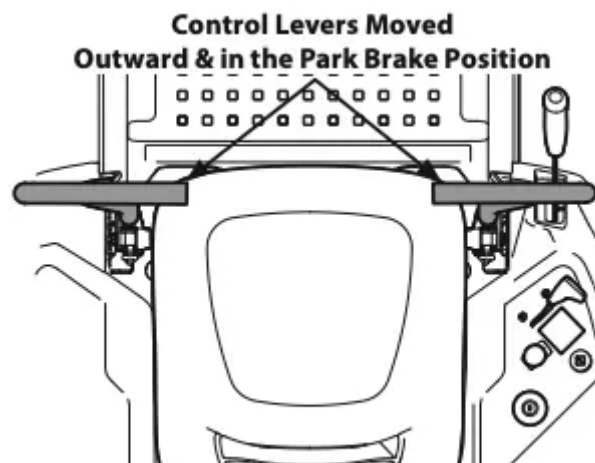


Figure 17

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.

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.
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 1/2-3/4 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.

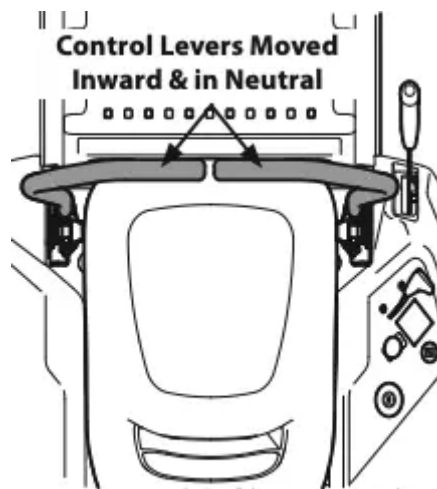


Figure 18

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 lapbar 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.

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.

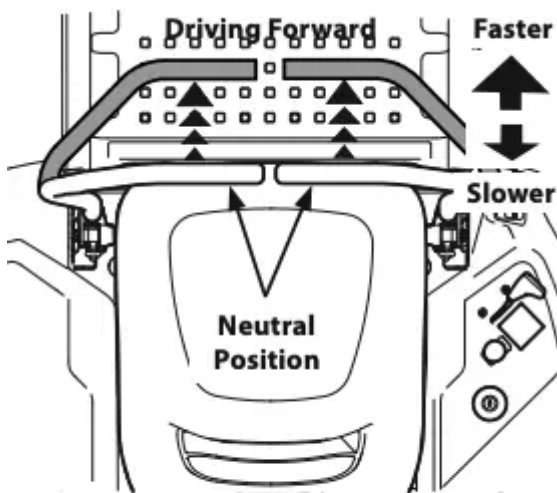


Figure 19

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.

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.

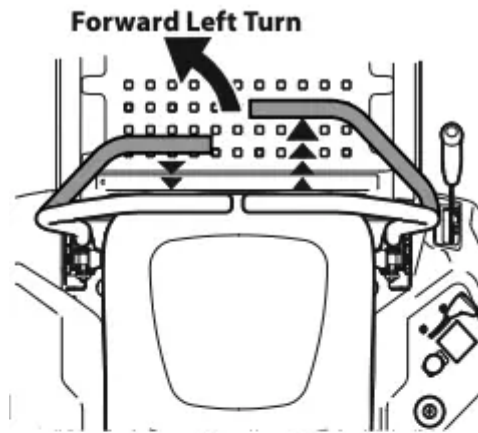


Figure 20

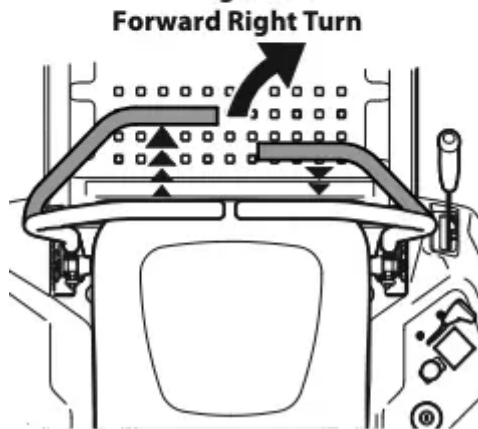


Figure 21

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

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 .

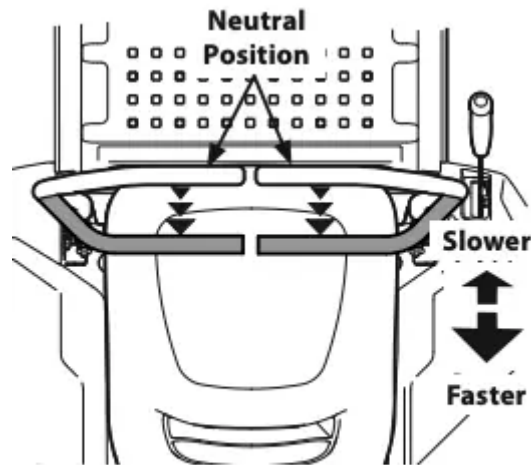



Figure 22


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.

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.

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

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.

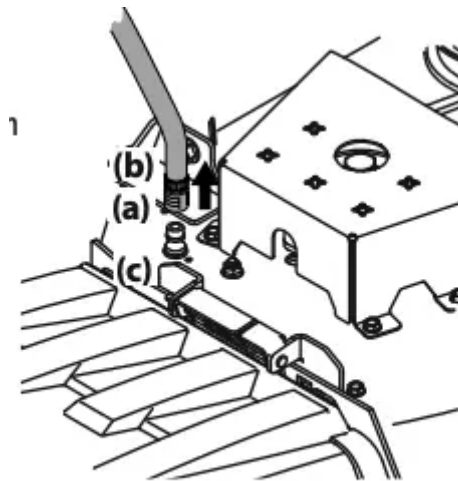


Figure 27

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.

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.

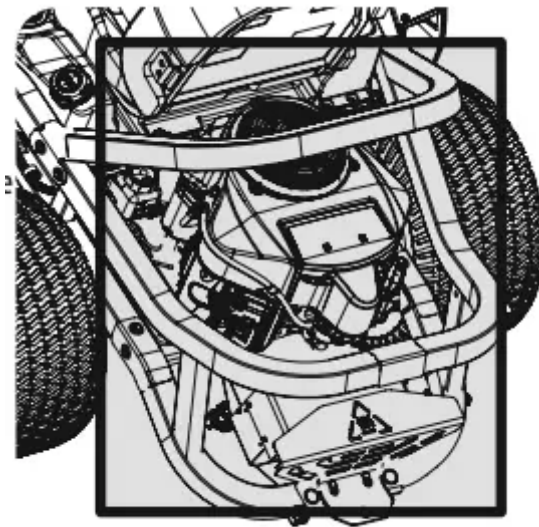


Figure 28

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

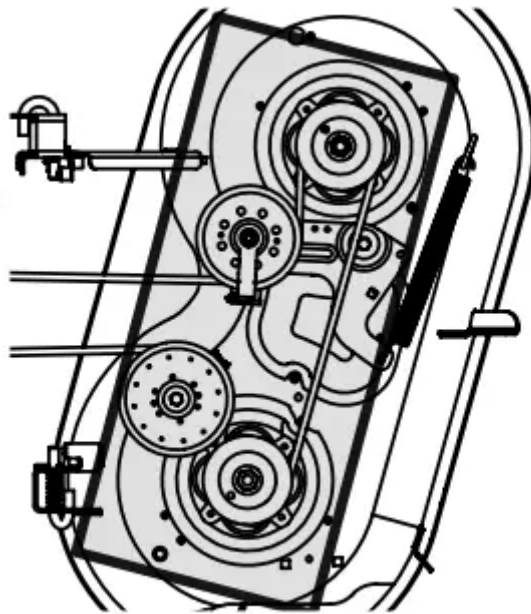
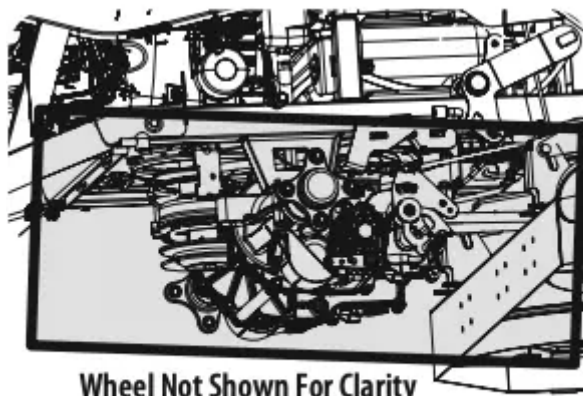


Figure 29

- Clean around and near the transmission, axle and the fan area. See 30.



Wheel Not Shown For Clarity

Figure 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.
- Fuel leaks/spills, oil leaks/spills and excess lubrication can also become collection 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.

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.

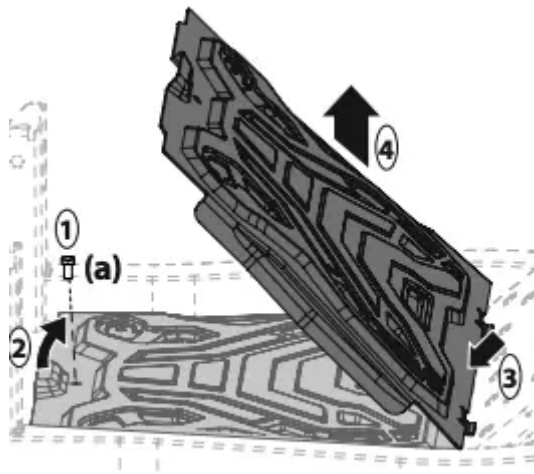


Figure 31

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).

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.

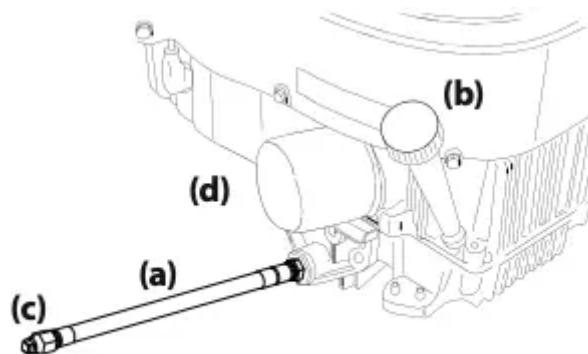


Figure 32

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.

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

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.

Engine Fails to start

1. PTO/Blade Engage knob engaged.
 - 1. Place knob in disengaged (OFF) position.
2. Parking brake not engaged.
 - 2. Engage parking brake.
3. Spark plug wire disconnected.
 - 3. Connect wire to spark plug.
4. Throttle control lever not in correct starting position.
 - 4. Place Throttle lever to FAST position.
5. Fuel tank empty, or stale fuel.
 - 5. Fill tank with clean, fresh (less than 30 days old) gas.
6. Blocked fuel line or fuel filter.
 - 6. Replace fuel line. See a Sears or other qualified service dealer. Replace fuel filter. See the Service and Maintenance section.
7. Faulty spark plug.
 - 7. Clean, adjust gap or replace plug.
8. Engine flooded.
 - 8. Crank engine with throttle in FAST position
9. Fuse(s) blown.
 - 9. Replace fuse.

Engine runs erratically

1. Riding mower running with Choke activated.

- 1. Check that the electric choke is working. See a Sears or other qualified service dealer.

2. Spark plug wire loose.

- 2. Connect and tighten spark plug wire.

3. Blocked fuel line or stale fuel.

- 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. Vent in gas cap plugged.

- 4. Clear vent or replace cap if damaged

5. Water or dirt in fuel system.

- 5. Drain fuel tank. Refill with clean, fresh gasoline. See the Service and Maintenance section.

6. Dirty air cleaner.

- 6. Clean or replace air cleaner paper element or clean foam pre-cleaner.

Engine overheats

1. Engine oil level low

- 1. Fill engine with proper amount and type of oil.

2. Air flow restricted

- 2. Clean grass clippings and debris from around the engine's cooling fins and blower housing.

Engine hesitates at high RPMs

1. Spark plug gap set too close

- 1. Remove spark plug and adjust gap.

Engine idles poorly

1. Fouled spark plug

- 1. Replace spark plug and adjust gap.

2. Dirty air cleaner

- 2. Clean or replace air cleaner element and/or clean pre-cleaner.

Excessive vibration

1. Cutting blades loose or unbalanced

- 1. Tighten blade and spindle. Balance blade.

2. Damaged, dull, or bent cutting blade

- 2. Replace blade.

Uneven cut

1. Deck not leveled properly.

- 1. Perform side-to-side deck adjustment

2. Dull blade.

- 2. Sharpen or replace blade.

3. Uneven tire pressure.

- 3. Check tire pressure in all four tires.

Warning

This content is compiled from multiple sources and is provided for reference purposes only. It may not be complete or fully applicable to all situations. If you are unable to resolve your issue, please contact the product manufacturer or an authorized service provider for official support.

