



The Articulator

Owner's Manual

WZ1000 series

D4920

Manual number: MWZ1000D4920

For WZ1000D4920 mowers beginning with serial number 72041121



WARNING! Read and understand this manual before using this machine.

California
Proposition 65 Warning



WARNING: Breathing gas/diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm.

Always start and operate the engine in a well-ventilated area.

If in an enclosed area, vent the exhaust to the outside.

Do not modify or tamper with the exhaust system.

Do not idle the engine except as necessary.

For more information go to **www.P65warnings.ca.gov**.

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Lastec, LLC
8180 W. 10th Street
Indianapolis, IN 46214
Phone (317) 892-4444, (800) 515-6798
www.lastec.com

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SECTION 1 TO THE OWNER

1.1 Read This Manual BEFORE Operating



Do not allow anyone to operate the Lastec Mower without first reading and understanding this operator's manual in its entirety. Do not allow non-essential personnel, especially children, to operate the Lastec Mower. Do not operate the Lastec Mower when non-essential personnel, especially children, are present.

This information prepares you to operate the Lastec Mower in a safe and knowledgeable manner, providing a safer working environment, and promoting higher quality, more efficient results.

This manual is to assist you in properly and safely operating and maintaining the mower. Read and understand this entire manual before attempting to set-up, operate, adjust, perform any maintenance on, or store the mower.

Keep this manual at hand at all times for ready reference.

1.2 Product Registration

Immediately record the model and serial numbers of your Lastec Mower in the spaces provided below.

Model Number: _____

Serial Number: _____

These numbers can be found on the serial number plate/decal which is permanently affixed to the mower.

You should now fill out the warranty registration form online at www.lastec.com. This form must be completed and returned to the factory within fifteen (15) days of purchase in order to validate the warranty. Please do not hesitate.

1.3 Warranty Registration

Complete the following Lastec Warranty Registration Form and return to Lastec within 15 days of the purchase of the Lastec Mower. This will aid you, Lastec, and Lastec distributor in warranting and servicing of your Lastec Mower.

Warranty registration can be done online through the Lastec website at www.lastec.com. (See Figure 1-1.) If you have difficulties accessing or filling out your registration form, your Lastec representative can assist you.

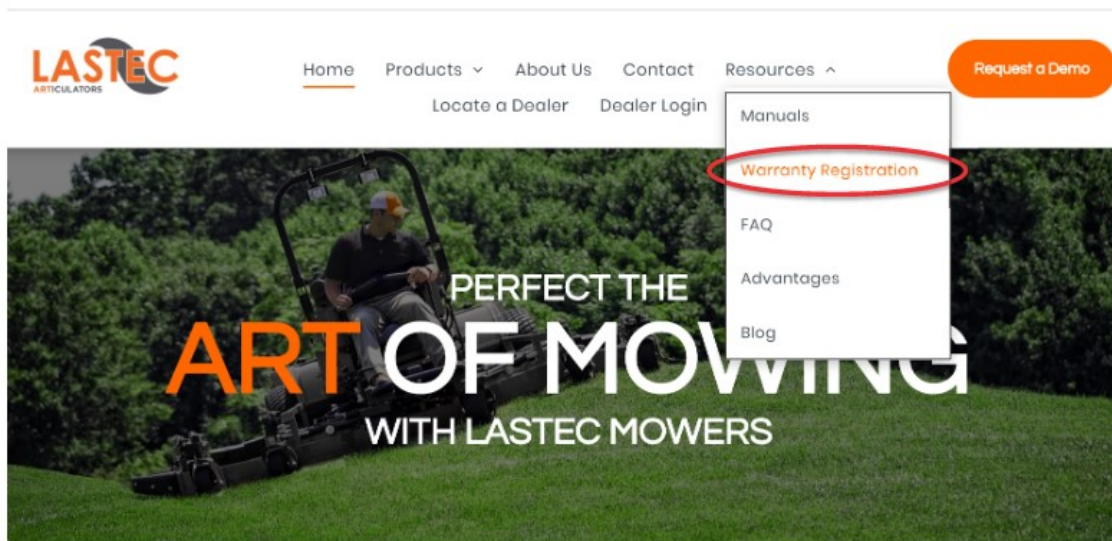


FIG. 1-1

1.4 If You Need To Order Parts

To order parts, contact your distributor. Be sure to have your model and serial number available as a reference. This will assist them in supplying you the correct and most current parts available for your Lastec Mower.

NOTE: Use only genuine Lastec parts when servicing your Lastec Mower. Use of substitute parts may cause unsafe operation, unsatisfactory performance, and void the warranty of your Lastec Mower.

1.5 Servicing The Lastec Mower

The Lastec Mower is carefully engineered and manufactured to provide safe, dependable, and satisfactory service. As with all other mechanical equipment, the Lastec Mower requires routine inspection, cleaning and maintenance.

When servicing the Lastec Mower, be sure to use only genuine Lastec parts. Utilization of substitute parts will not only void the warranty, but may also cause unsafe or unsatisfactory operation of the Lastec Mower due to their substandard quality or incorrect application.

In order to handle all of your service needs, your authorized Lastec dealer stocks genuine Lastec parts, and has trained mechanics on hand.

1.6 2020 PRODUCT WARRANTY

Wood-Mizer, LLC, DBA Lastec (Lastec) (“warrantor”), with its place of business at 8180 West 10th Street, Indianapolis, IN 46214 warrants as stated herein to the original purchaser (“purchaser”) for two (2) years or 2000 hours of equipment use, whichever comes first, on parts and one (1) year of labor for equipment use from the date of purchase from Lastec (“warrantor”), that the equipment manufactured by warrantor and any optional equipment or accessories purchased at the same time, subject to the exclusions herein, will be free from defects in material and workmanship attributable to warrantor so long as it is operated and maintained in accordance with the instructions provided by warrantor and purchaser has completed the registration form or warrantor may choose to not honor any warranty claims. Limited lifetime urethane bushing and bushing hardware warranty.

90 DAY LIMITED WARRANTY

Warrantor agrees to replace any defective wear components including but not limited to seals, bearings, idlers with bearings, wheels/tires, bushings and blades for ninety (90) days from date of purchase. After ninety (90) days, all wear components are no longer covered under further warranty from warrantor. (Component failure as a result of improper maintenance of wear items may not be covered under warranty at the warrantor’s discretion. I.E. improper cleaning/lubrication practices) After ninety (90) days, component failure as a result of loose hardware is no longer covered under further warranty from warrantor.

Warrantor agrees to warranty for a period of ninety (90) days from date of purchase to any original purchaser who is a rental yard, lease-based business or temporary use facility that the equipment manufactured by warrantor and any optional equipment or accessories purchased at the same time will be free from defects in material and workmanship attributable to warrantor so long as it is operated and maintained in accordance with instructions provided by warrantor. After ninety (90) days, no further warranty will exist for rental yard, lease-based or temporary use businesses or facilities.

FREIGHT ALLOWANCE

Freight allowance for warranty – expedited freight covered by warrantor in “mower down” situations for first year of warranty not to include wear items as listed above in the (90) day limited warranty. After the first year freight for warranty items would be limited to regular ground shipment at the discretion of the warrantor.

WARRANTOR’S OBLIGATIONS AS TO DEFECTS

Warrantor’s only responsibility shall be to replace any covered defects or repairs without cost to purchaser. Warrantor may request that such part or unit be returned to Warrantor’s place of business. Purchaser will be responsible for transportation or shipping of part or unit to the distributor and such part must be returned to distributor within fifteen (15) days after requested. Warrantor shall have a reasonable time within which to replace or repair defective part or unit. If warrantor determines that the part or unit is not defective under the terms of this warranty, then purchaser shall be responsible for expenses incurred by warrantor in returning part or unit to original purchaser. Warrantor gives no allowance for labor, travel time, mileage or incidental or consequential damages. Purchaser must submit warranty claims to a distributorship authorized by Warrantor. Warrantor’s authorized distributors are responsible for all repairs and the processing of all warranty claims.

WARRANTY PARTS RETURN

Lastec reserves the right to have parts returned that have been submitted for warranty. The service department will issue an RMA number. The part must be returned within 30 days of the requested return date. Parts not returned within 30 days of the RMA issue date will result in rejection of claim.

LIMITATIONS AND DISCLAIMERS OF OTHER WARRANTIES

EXCEPT FOR THE EXPRESS WARRANTY PROVISIONS STATED ABOVE, WARRANTOR DISCLAIMS ALL WARRANTIES, EXPRESS AND/OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No representation or other affirmation of fact by representatives of warrantor, whether verbal or in writing, including photographs, brochures, samples, models, or other sales aids, shall constitute a warranty or other basis for any legal action against warrantor. THE ORIGINAL PURCHASER, ANY PERSONS TO WHOM THIS EQUIPMENT IS TRANSFERRED AND ANY INTENDED USER OR BENEFICIARY OF THIS EQUIPMENT SHALL NOT BE ENTITLED TO RE-COVER ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FROM WARRANTOR FOR ANY REASON WHATSOEVER, INCLUDING WARRANTY OR DEFECT IN THE PRODUCT. Warrantor does not warrant that its equipment meets or complies with the requirements of a particular safety code or governmental requirements.

DESIGN CHANGES

Warrantor reserves the right to change the design of its products from time to time without notice and without obligation to make corresponding changes in its products previously manufactured.

RIGHTS OF PURCHASER

The validity and effect of this limited warranty as well as its interpretation, operation and effect, shall be determined exclusively by the principles of law and equity of the State of Indiana. This limited warranty gives purchaser specific legal rights. Purchaser may also have other rights, which may vary from State to State. Some States may not allow limitations as to duration of warranties so the above may not apply.

This contract supersedes all prior written and oral agreements related to the purchase and is intended to be an integration of the entire agreement between the parties. All of the promises, warranties, guarantees and representations made by warrantor or its representatives that are not specifically contained herein are not included in this warranty.

1.7 Component Manufacturers' Warranties

Some of the component parts of your Lastec Mower are warranted by their respective manufacturers. These parts include:

- Engine
- Clutch
- Hydraulic pumps
- Battery

The complete manufacturers' warranty information for these components is available upon request. Contact your Lastec dealer if you have questions concerning warranties on these component parts.

SECTION 2 SAFETY INFORMATION

2.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.



DANGER! indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.



WARNING! suggests a potentially hazardous situation which, if not avoided, could result in serious injury or death.



CAUTION! refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury or damage to equipment.

NOTICE indicates vital information.

The above illustrated symbols are displayed throughout this manual in order to indicate important safety information. When one of these symbols appears in this manual, be aware of a potential hazard being discussed in the accompanying paragraphs. Hazards such as damage to equipment, serious personal injury, or even fatal injury are possible, perhaps even likely, if the accompanying instructions or procedures are not heeded.

OWNER'S RESPONSIBILITY

The procedures listed in this manual may not include all ANSI, OSHA, or locally required safety procedures. It is the **owner/operator's responsibility** and not Lastec to ensure all operators are properly trained and informed of all safety protocols. Owner/Operators are responsible for following all safety procedures when operating and performing maintenance to the Lastec Mower.

2.2 About This Section



WARNING! Read this manual and all manuals of any related equipment in their entirety.

NOTICE Right and left are determined facing in the direction of forward travel.

Blade rotation is clockwise as viewed from the top of the deck.



The purpose of this manual is to assist you in properly and safely operating and maintaining the mower. **Read and understand this entire manual** before attempting to set-up, operate, adjust, perform any maintenance on, or store the mower. This manual provides essential information and instructions which will help you enjoy years of dependable performance from the mower.

The safety of the mower is dependent upon operating within the parameters explained in this manual. Follow all safety rules for this mower and all related equipment.

Although these instructions have been compiled through field experience and engineering data, some information presented herein may be general in nature due to varying operating conditions. It is up to the operator to develop procedures suitable to your particular cutting application.

NOTE: The illustrations and data used in this manual were current at the time of printing, but the mower may vary slightly due to ongoing engineering changes. Lastec reserves the right to implement engineering and design changes to the mower as may be necessary without prior notification.

2.3 Safety Guards And Covers



WARNING! Do not operate the mower with any safety covers removed.

Follow all safety rules.

NOTICE Some illustrations in this manual show the mower with safety covers removed in order to provide improved viewing of the particular components being discussed. ***This is for informational purposes only -- Do not operate the mower without all covers, shields, safety devices, and grass chute or mulching plate installed and secure.***

Safety is a primary concern in the design and manufacture of all Lastec products. Unfortunately, our extensive efforts to provide safe equipment can be negated by a single careless act of an operator. In addition to the design of the mower, accident prevention is dependent upon the awareness and proper training of all personnel involved in the operation, transportation, maintenance, and storage of the mower.

The best safety device is an informed, careful operator.

We ask you to be that kind of operator.

2.4 Pre-operational Safety Rules



WARNING! Do not allow non-essential personnel, especially children, on or near the mower.

Do not operate the mower when non-essential personnel, especially children, are present.

Clear area of all personnel before operating the mower.

Do not allow anyone to operate the mower without proper instruction.

Know how to stop the mower quickly in an emergency.

2.5 Personal Protection Equipment



WARNING! Wear eye and hearing protection.

Wear close-fitting clothing to avoid entanglement in moving parts.

Do not operate the mower or related equipment in bare feet, sandals, or sneakers: wear sturdy rough-soled work shoes.

Clear the cut area of stones, branches, balls or other debris that may be thrown.

Do not operate with ROPS in the folded position.



CAUTION! Verify that all safety decals are properly installed, visible, and intelligible.

Remove accumulated debris, fuel, or excess grease and oil from your Lastec Mower engine area to avoid a fire hazard.

Perform the pre-operation equipment inspection and the appropriate maintenance schedule before operating your Lastec Mower.

Do **not** change the engine governor settings or over-speed the engine.

2.6 Operational Safety Rules



DANGER! Stay clear of blades during operation.

Stay clear of all moving parts.



DANGER! Handle fuel with care to avoid fire or explosion:



- use approved fuel containers;
- do not handle fuel near an open flame;
- do not use fuel as a solvent;
- do not fuel the drive unit while the engine is running
- do not fuel the drive unit while the engine is hot;
- do not fuel the mower indoors;
- do not fuel while sitting on drive unit;
- clean up any spilled fuel;
- do not smoke around fuel or while fueling;
- do not open fill cap on sloped ground
- refuel on level ground only; and
- do not fill beyond recommended levels indicated on mower.

Never leave running mower unattended on sloped ground.

Operate only in daylight or good artificial light.

Wear [Personal Protection Equipment](#) when operating the Lastec Mower.

Ensure that the parking brake is set and blades disengaged before attempting to start the engine.

Do not operate the mower without the grass chute or mulching plate installed and secure.

Do not operate the mower unless all covers, shields, and safety devices are installed and secure.

Do not permit any person other than the operator to ride or board the drive unit or mower at any time.

Do not allow anyone near the mower while operating.

Do not allow anyone near or in the path of discharge.

Do not discharge in the direction of bystanders, vehicles, or buildings.

Do not stop or start suddenly when going up or down a hill.

Avoid operating on steep (15 degrees or higher) slopes.

Disengage the blades, stop the engine, set the parking brake, and remove the key before dismounting the drive unit or making any adjustments to the mower.

Stop the mower immediately upon striking any obstruction. Disengage the blades, turn off the engine, set the parking brake, remove the key, and inspect the mower for any damage. Repair any damage before resuming operation of the mower.

Do not adjust the mower deck height or lift the deck into transport position while the blades are engaged.

Do not engage the blades with the mower decks raised into transport position.

Do not place your hands or feet under the deck while the engine is running.

Take all possible precautions when leaving the mower unattended:
disengage the blades,
turn off the engine,
set the parking brake, and
remove the key.

Activate headlights and/or hazard lights whenever crossing or accessing any roadways, driveways, or parking lots.

Watch for oncoming traffic.



2.7 Maintenance Safety Rules



DANGER! Disengage the blades, turn off the engine, set the parking brake, and remove the key before performing any maintenance or adjustments to your Lastec Mower.

Verify that all blades are sharp, free of nicks or cracks, and securely fastened. **Immediately replace blades that show any signs of cracks.**

Do not perform maintenance on your mower when non-essential personnel, especially children, are present.



CAUTION! Verify that all safety decals are properly installed, visible, and legible.

Remove accumulated debris, fuel, or excess grease and oil from the drive unit engine area to avoid a fire hazard.

Verify that the deck is properly mounted, set up, adjusted, and in good operating condition.

Perform the pre-operation equipment inspection and the appropriate maintenance schedule (*Section 5*) before operating the mower.

Disengage the blades, turn off the engine, set the parking brake, and remove the key before performing any service to, maintenance on, or adjustments to the mower.

Do not perform maintenance on the mower when non-essential personnel, especially children, are present.

Perform the appropriate maintenance schedule(s) in a timely fashion.

Do not allow anyone near any operator controls while performing adjustments, service or maintenance to the drive unit or deck.

Use [Personal Protection Equipment](#) such as eye, hand, head, and ear protection when performing any service or maintenance to the drive unit or deck.

Keep the drive unit engine area free of accumulated debris, fuel, or excess grease and oil to reduce fire hazard.

Keep the mower in good operating condition with all safety devices in place.

Verify that all fasteners are properly installed to ensure the drive unit and deck are in safe operating condition.

Upon completing any maintenance or service function, verify that all safety guards and devices are properly installed before operating the drive unit or deck.

Verify that all warning labels and decals are properly installed, visible, and legible.

Remove all tools and waste from the maintenance area.

2.8 Storage Safety Rules



DANGER! Do not run the engine in an enclosed space.

Do not store equipment with fuel in the tank inside a building where fumes could reach an open flame or spark.



WARNING! Do not store the mower in any area accessible by non-essential personnel, especially children.

Lock the safety pins on the raised decks.

Allow the engine to cool before storing it in an enclosed area.



CAUTION! Remove all accumulated debris from the top and bottom of the deck before storing.

Sand chipped or scratched areas and re-paint them to prevent rust during storage.

Lubricate all moving parts of the drive unit and deck to prevent rust during storage.

2.9 Use Caution When Working With Batteries

 **DANGER!** Keep sparks, flames, burning cigarettes, or other ignition sources away at all times. Failure to follow this will result in serious injury or death.

 **WARNING!** Wear safety goggles and a face shield when working near batteries. Failure to follow this could result in serious injury or death.

Wash hands after handling batteries to remove possible lead, acid, or other contaminants. Failure to follow this could result in serious injury or death.

Charge the battery in a well ventilated area. Failure to follow this could result in serious injury or death.

Do not attempt to charge a frozen battery. Failure to follow this could result in serious injury or death.

EMERGENCY TREATMENT FOR CONTACT WITH BATTERY COMPONENTS (LEAD/SULFURIC ACID) per SDS (Safety Data Sheet):

EYE CONTACT	Sulfuric Acid and Lead: Flush eyes immediately with large amounts of water for at least 15 minutes while lifting lids. Seek immediate medical attention if eyes have been exposed directly to acid.
SKIN CONTACT	Sulfuric Acid: Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes. Lead: Wash immediately with soap and water.
INGESTION	Sulfuric Acid: Administer large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.
INHALATION	Sulfuric Acid: Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician. Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

2.10 Safe Booster Cable Operation

 **WARNING!** Wear proper eye protection.
Do not lean over the battery.

1. Inspect both batteries before connecting booster cables. **Do not jump start a damaged battery.**
2. Ensure vent caps are tight and level.
3. Ensure that the two vehicles are not touching and both ignition switches are turned to the OFF position.
4. Connect positive (+) booster cable to positive (+) junction studs on the inside front right side of the engine bay.
5. Connect other end of positive (+) cable to positive (+) terminal of assisting battery.
6. Connect negative (-) cable to negative (-) terminal of assisting battery.

 **WARNING!** Make final connection of negative (-) cable to engine block of stalled vehicle, away from battery.

7. Start engine and remove cables in **REVERSE** order of connections.

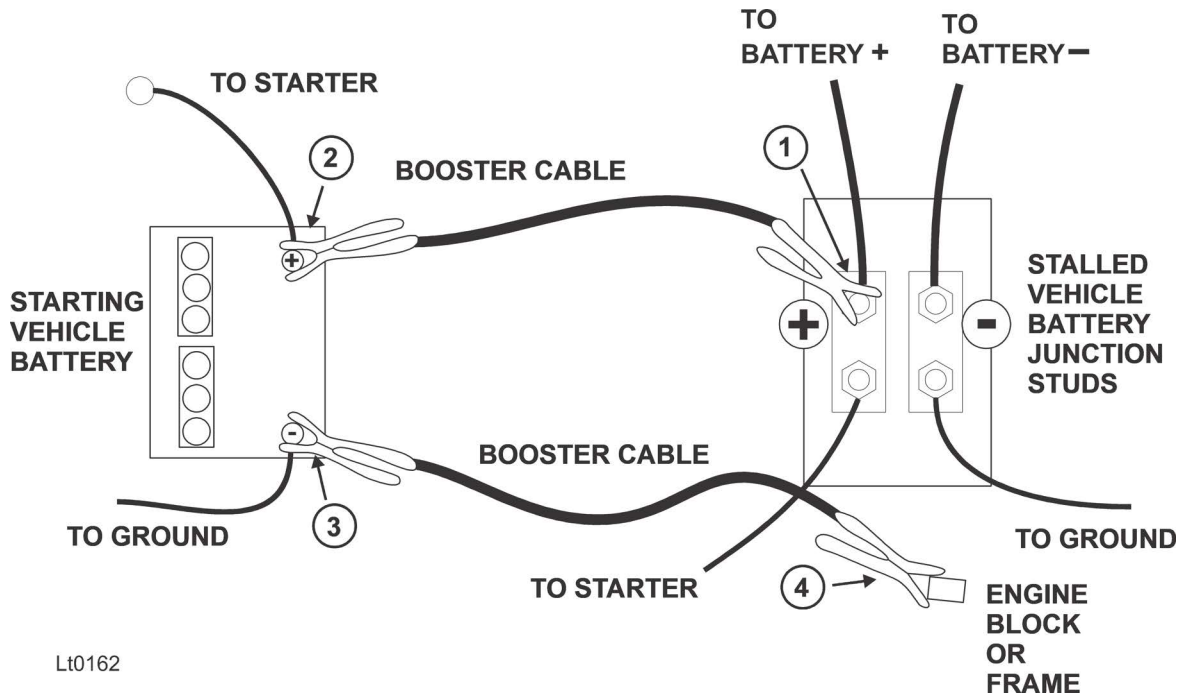
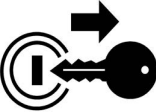
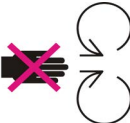


FIG. 2-1

2.11 Safety Decals and Symbols

The following safety symbols are used on your Lastec Mower. Operators should become familiar with these symbols and heed the warnings where they appear on your Lastec Mower.

	Attention.		Caution. Rotating Blades..
	Pinching/Crushing Danger.		Keep Hands and Feet Away from Blades.
	Keep Covers Locked Down		Pinch Point.
	Read the Manual.		Remove the Key.
	Rotating Parts.		Rotating Shaft.



2.12 Hazard Identified Chart

Hazard Identified	Risk Source	Control Measure
Operator injury	Inexperience	Complete Owner's Manual supplied covering all aspects of operating the unit. Various warning decals strategically placed on the unit.
Unit overturning, crushing operator	Operating on steep or slippery slopes	ROPS framework on the unit. Seat belts for the operator. Warning decals. Clear warning in manual.
Risk of burns to hands and fingers	Hot surfaces from operations, such as exhaust system	Warning decals. Clear warning in manual.
Burns and scalds from radiator	Hot steam or water jets from opening radiator when engine is hot	Clear warning in manual.
Danger of entanglement	Moving parts. Guards are not in place.	Warning decals stating guards must be in place. Physical guards around belts and pulleys. Clear warning in manual.
Battery explosion	Improper battery handling or jumping	Instructions on battery handling from the Battery Council International included in manuals.
Danger of dismemberment	Cutting blades	Warning decals. Clear warning in manual. Physical guards around blades. Clear prohibitions outlined in manual.
Danger of projectile strike	Ejected debris from cutting blades	Warning decals. Clear warning in manual. Physical guards around blades.
Personal injury	Persons riding as passengers	Warning decals. Clear warning in manual.
Fuel fire/explosion	Improper refueling or fuel handling	Warning decals. Clear warning in manual.
Inhalation of exhaust fumes/carbon monoxide	Extended running of engine indoors or in a poorly ventilated area	Clear warning in manual.
Finger pinch points	Moving parts	Warning decals stating hazardous locations. Physical guards around such points. Clear warning in manual.
Electrical shock	Improper battery handling or jumping	Instructions on battery handling from the Battery Council International included in manuals.

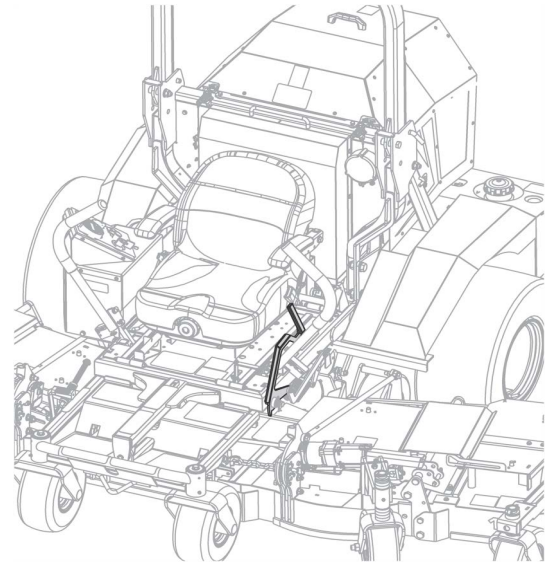
SECTION 3 INITIAL SET-UP

3.1 Parking Brake

 **WARNING!** Set the parking brake before performing any set-up, inspection, adjustments, or maintenance to the Lastec Mower.

The parking brake is located to the left of the operator seat, just in front of the left steering control lever.

1. Set the parking brake.
 - a. Pull upward until the handle is in the full rearward position.
 - b. Increase the brake tension until further travel of the handle ceases.
2. Release the parking brake.
 - a. Pull upward on the handle to relieve the brake tension.
 - b. Slowly return the handle all the way down to its original position.



3.2 Fuel

 **DANGER!** Do not store fuel in unapproved containers, in confined areas, or near spark or any heat source.

Do not smoke near fuel.

Turn off engine before refueling.

Do not refuel indoors or when engine is hot.

Clean up all spilled fuel before starting engine.



The Lastec Mower is equipped with two fuel tanks located at the left and right side fenders which are shipped dry (no fuel) from the factory. Fuel the Lastec Mower before operating. (The engine has been run at the factory, so bleeding the fuel lines is unnecessary.)

The left fuel tank has a sight gauge, but the right tank has a level sensor so the fuel level can be checked on the operator's electronic display.

Do not attempt to fuel the Lastec Mower until you read and understand the entire INITIAL SET-UP section of this manual.

FUEL: Use only No. 2 diesel fuel. Do not use any other alternative fuel. Kerosene and low quality fuel will adversely affect the engine. Contaminants in the fuel can adversely affect the fuel injection pump.

 **CAUTION!** Do not allow either fuel tank to drain completely of fuel. This can allow air into the fuel system. If this happens, the fuel system will have to be bled before restarting the engine.

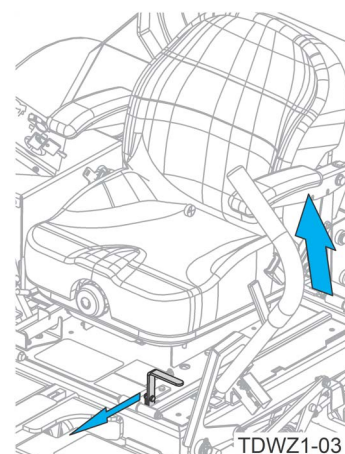
Refer to the *Kubota Engine Operator's Manual* for proper engine instructions.

3.3 Engine Cover/Operator Seat Pan

 **WARNING!** Clean the entire engine area and deck area of any excess grease, oil, fuel, or debris to prevent damage to the equipment, fire hazard, and projectile hazards.

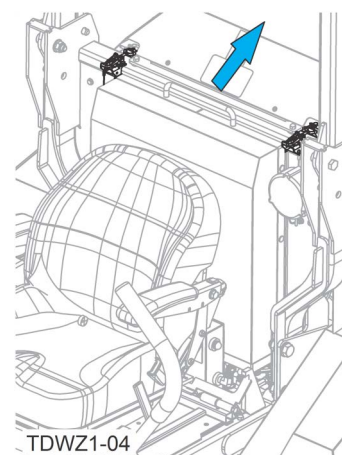
1. Access the drive components or controls by opening the operator seat pan
 - a. Pull the lever at the front of the seat pan to the front, releasing the locking tabs.
 - b. Raise the seat until travel is stopped by the pan.

This is slightly beyond the vertical position.



2. Access the engine components by opening the engine cover.
 - a. Release the two latches located at the top front of the engine cover.
 - b. Lift the cover back all the way until the cover stops in the open position.

3. Clean the entire engine area (under the engine cover) of all excess grease, oil, fuel, grass, or debris.
4. Clean mower deck area (under the operator seat pan) of all excess grease, oil, fuel, grass, or debris.
5. Ensure both the operator seat pan and engine cover are closed, latched, and secure.



3.4 Engine Oil



WARNING! Turn off engine before checking the oil level, changing the oil, or changing the oil filter.

Allow ample time for oil to cool before changing or repairing leaks.

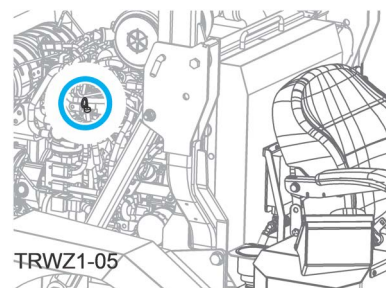


CAUTION! Check the engine oil level and quality daily.

Use the correct oil in the engine crankcase. Incorrect oil, inadequate oil level, or contaminated oil will cause engine damage.

NOTICE Check the oil level before starting the engine, or wait more than five minutes after turning off an engine that has been running.

1. Park the Lastec Mower on level ground.
2. Check the oil level with the dipstick.
3. To add or change the engine oil and/or oil filter, allow ample time for the engine and engine oil to cool.
 - Use API classification CK-4 engine oil.
 - Change the type of engine oil according to the ambient temperature.



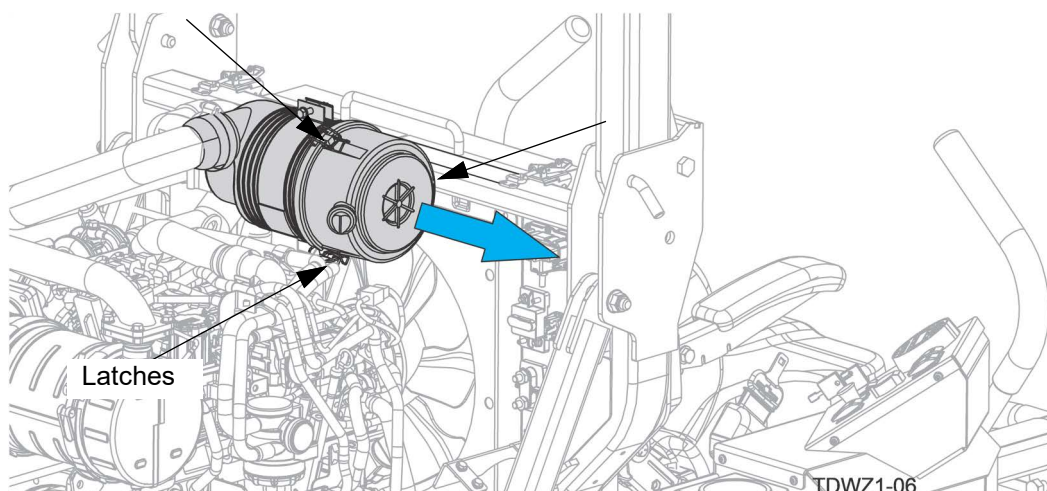
Above 25°C (77°F)	10W-30 or 10W-40 or 15W-40
-10°C to 25°C (14°F to 77°F)	10W-30 or 10W-40 or 15W-40
Below -10°C (14°F) 1	10W-30 or 10W-40

- When using oil of different brands from the previous one, be sure to drain all the previous oil before adding the new engine oil.
- Unit shipped with 10W-40 API classification CK-4.

3.5 Air Cleaner

The air cleaner is located under the engine cover, to the top right of the engine. Open the cap by unlatching the silver latches on the sides of the filter housing.

There are two filter elements within the air cleaner.



1. Ensure both filter elements are clean and free of debris.
2. Clean or replace if necessary.
3. Consult the *Kubota Diesel Engine Operator's Manual* for the proper procedures.

3.6 Coolant



WARNING! The radiator is pressurized when hot.

Do not check the coolant while the engine is running or hot.

Allow ample time for coolant to cool before checking, changing, or repairing leaks.



CAUTION! Clean radiator daily. Overheating may occur if radiator is not cleaned daily.

Brush out and clean radiator and hood grills daily to prevent overheating.

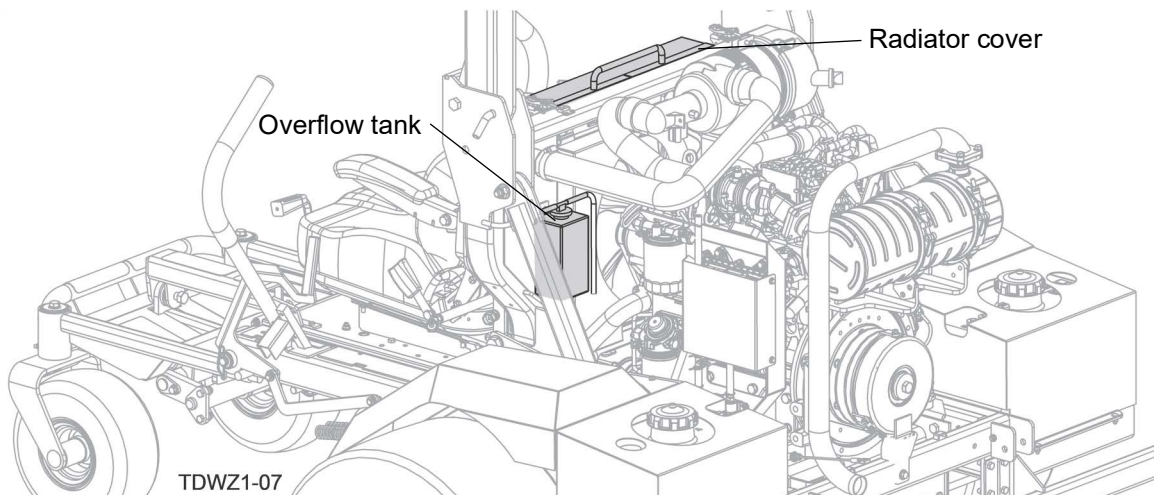
Fill the coolant system to the proper level.

Ensure the coolant is mixed properly and is in good condition.

Check for coolant leaks before operating.

Incorrect mixture, inadequate coolant level, poor condition, or leaks may cause severe engine damage.

The radiator is located behind the operator's seat.



NOTICE Consult the *Kubota Diesel Engine Operator's Manual* or proper coolant types and mixtures.

1. Ensure engine is off and cool.
2. Clean out any dirt or debris from around the radiator and engine compartment.

NOTE: To remove the radiator screen, use the handle on top and pull upward until the pins on the inside are free of the slots. Tilt forward while continuing to pull up to remove the rest of the way.

3. Ensure the coolant level in the overflow tank is at 3/4 full at all times.
 - If the coolant level is low, add premixed coolant prior to operation.
 - If the coolant appears excessively contaminated or diluted, change the coolant prior to operation.
4. Check the entire coolant system for any leaks:
 - Radiator,
 - Overflow tank
 - Hoses,
 - Clamps
 - Fittings
 - Engine compartment
 - Under the engine.

5. Repair or replace the defective parts.
6. Re-fill the coolant system with premixed coolant before operating.

3.7 Hydraulic Fluid

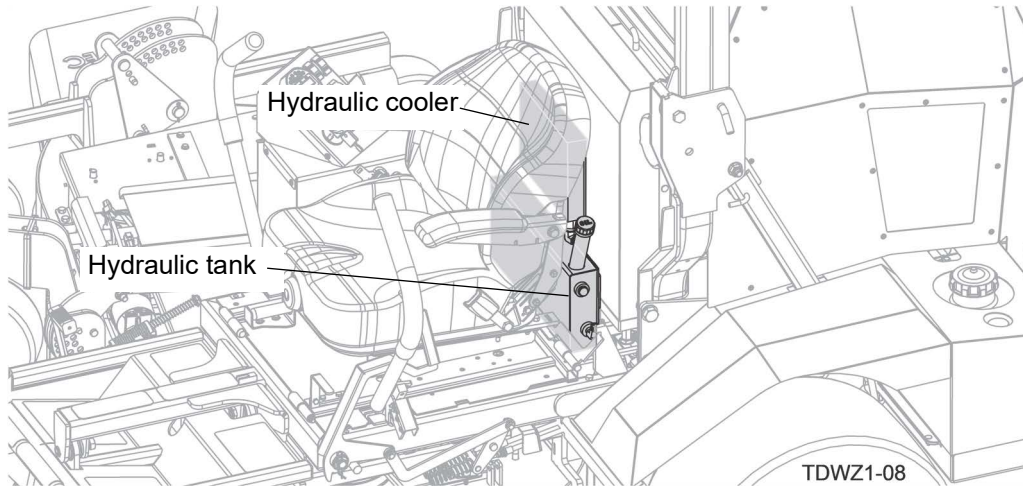
WARNING! Hydraulic fluid is pressurized when hot. Keep well away from any leaks or loose connections while system is pressurized.

Allow ample time for hydraulic fluid to cool before changing or repairing leaks.

CAUTION! Use only the correct Lastec Hydraulic Fluid (part numbers listed below) in the hydraulic tank.

Check fluid level and quality daily. Incorrect fluid, inadequate fluid level, or contaminated fluid will cause damage to the hydraulic system.

The hydraulic oil tank and cooler are located behind the operator's seat.



The Lastec Mower uses a specific type of oil formulated to prolong the life of the hydrostatic pumps.

Lastec has developed a kit, which contains (2) 2 1/2 gallon reusable containers of oil and (2) oil filters. This is enough oil and filters for (2) complete hydraulic system oil changes (system capacity is approximately 5 quarts).

- The 5 gal hydraulic oil kit part number is 049928.
- A 2.5 gal hydraulic oil kit part number is 049929.
- A quart of hydraulic fluid part number is 040642

NOTICE Place mower on level ground before checking hydraulic fluid level.

1. Check the hydraulic fluid level and condition with the engine turned off.
 - Check fluid level on dipstick with threads resting on full tube.

1. Check the hydraulic fluid level and condition with the engine turned off.
2. Ensure the hydraulic oil level remains FULL at all times.



CAUTION! Do not overfill. Equipment damage may occur.

3. Check the entire hydraulic system for any leaks
 - Motors and pumps,
 - Filter,
 - Tank
 - All hoses, clamps, and fittings, and
 - Entire area under the hydraulic system.

4. Repair or replace the defective parts and re-fill the hydraulic system before operating.

NOTE: Allow ample time for the hydraulic fluid to cool before beginning any repairs.

3.8 Towing (Hydrostatic Pump Setting)

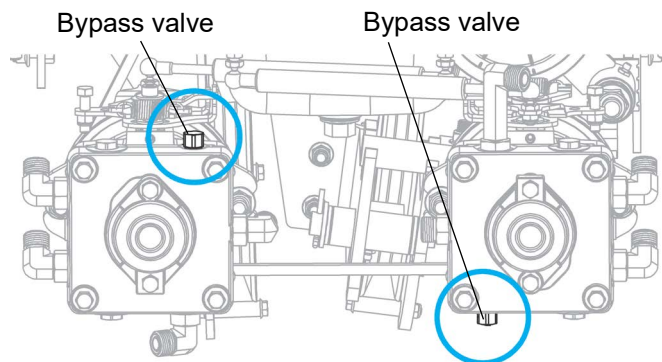
When towing the Lastec Mower, make adjustments to both of the hydrostatic pumps to allow the hydraulic fluid to bypass the pumps.

NOTE: The bypass valve is zinc plated with the hole drilled through the sides.

1. Use a 5/8" wrench to turn the valves **no more than (2)** two turns in a counterclockwise motion.

NOTE: The drive tires should rotate freely.

2. Tow the unit to the desired destination at a speed **not to exceed 3mph**.
3. When towing is completed, return the valves to their original position by turning them in a clockwise motion until they are tight (84-120 in-lbs).



3.9 Hydrostatic Pump Adjustment



WARNING! Use jack stands when adjusting the hydrostatic pumps.

Keep everyone clear of all controls while adjusting the hydrostatic pumps.

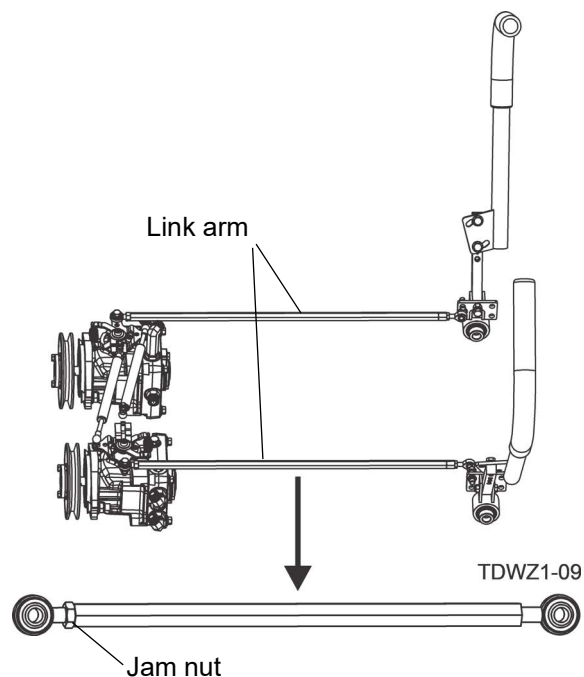
Occasional adjustments to the hydrostatic pumps may be necessary to keep the drive wheels from creeping:

1. Lift the rear of the drive unit until the drive tires clear the ground.
2. Be sure steering control levers are locked in neutral position.
3. Start the drive unit, and set the speed full throttle.

If either drive tire rotates, adjust the hydrostatic pump link arm for that tire.

- a. Loosen the jam nut from the hydrostatic pump link arm.
- b. Slowly turn the link arm, watching the tire as it turns.
- c. If the tire begins turning faster, turn the link arm in the opposite direction until it slows, and eventually stops.
- d. Tighten the jam nut to lock the link arm into this position.

4. Turn off the drive unit.
5. Ensure that both link arm jam nuts are tight.
6. Remove the unit from the jack stands.



3.10 Hydrostatic Pump Belt



WARNING! Do not inspect, adjust, or change the hydrostatic pump belt while the engine is running.

The hydrostatic pump drive belt is located at the front of the engine, between the radiator and the engine block. The idler should tension the belt properly so that additional adjustments are not necessary.

1. Check the belt for excessive wear, damage, cracks, weathering, or other unsuitable or unsafe operating conditions; replace the belt, if necessary.

NOTICE USE ONLY THE LASTEC BELTS AS REPLACEMENTS!

Lastec belts are specially designed for this mower. Similar belts may not meet the all the demands, leading to premature wear and reduced performance.

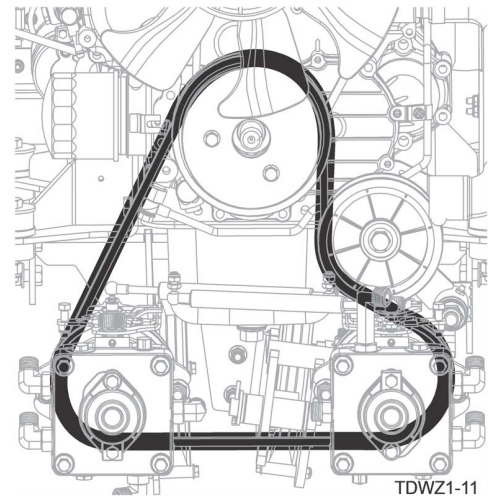
Ensure that the idler tensioning spring is properly installed and in good condition. If this spring becomes loose, detached, or fatigued, the idler will not properly tension the belt.

3.11 Mower Deck Drive Belt



WARNING! Do not inspect, adjust, or change the deck drive belt while the engine is running.

Clean the entire deck area (under the operator seat pan) of all grease, oil, fuel, grass, or debris to prevent fire and projectile hazards.



The mower deck drive belt is located under the operator seat pan and runs up to the rear of the engine. The spring-loaded idler system automatically tensions the belt to the proper level.

1. Check the belts for excessive wear, damage, cracks, weathering, or other unsuitable or unsafe operating conditions; replace the belt, if necessary.

NOTICE USE ONLY THE LASTEC BELTS AS REPLACEMENTS!

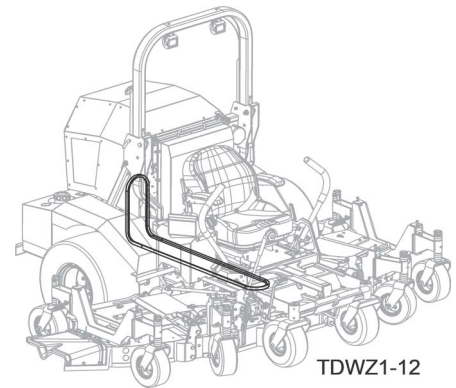
Lastec belts are specially designed for this mower. Similar belts may not meet the all the demands, leading to premature wear and reduced performance.

2. Ensure the idler pulley tensioning spring is properly installed -- not loose, detached, or fatigued.

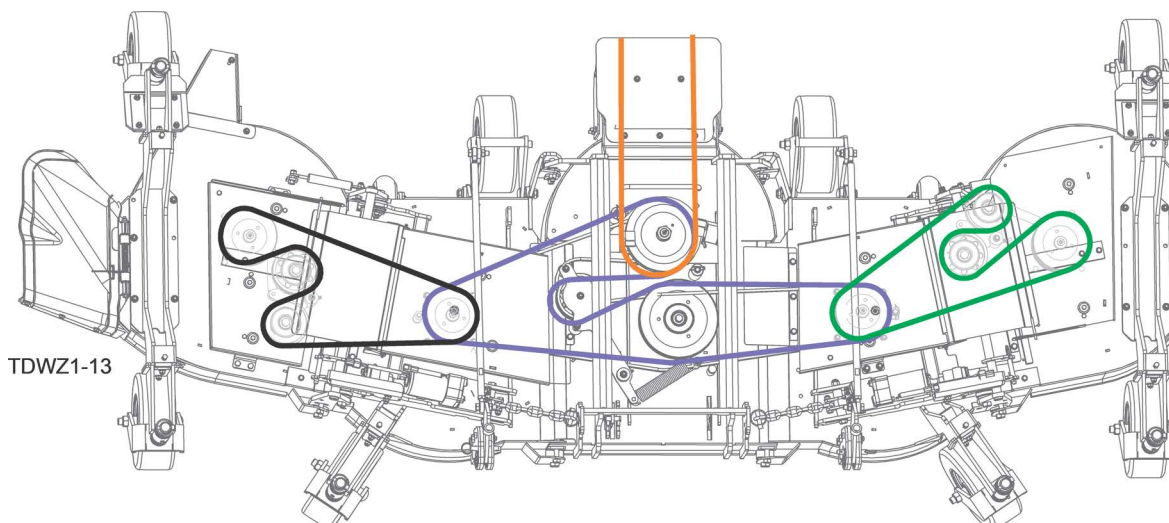
3.12 Mower Deck Belts

Do not inspect, adjust, or change the deck drive belt while the engine is running.

Clean the entire deck area (under the operator seat pan) of all grease, oil, fuel, grass, or debris to prevent fire and projectile hazards.



The pulley idler belt tensioning system located on decks 1, 3, and 5 automatically tensions the belts on the mower decks, thus eliminating the need for manual belt tension adjustment.



1. Check the belts for excessive wear, damage, cracks, weathering, or other unsuitable or unsafe operating conditions; replace the belt, if necessary.

NOTICE USE ONLY THE LASTEC BELTS AS REPLACEMENTS! Lastec belts are specially designed for this mower. Similar belts may not meet all the demands, leading to premature wear and reduced performance.

2. Ensure each idler pulley tensioning spring is properly installed and not loose, detached, or fatigued.
3. Replace all covers and hardware.

3.13 Blades

! DANGER! Do not inspect, adjust, change, or perform any other maintenance to the blades while the engine is running.

Turn off the blades, turn off the engine, remove the key, and set the parking brake before attempting to inspect, adjust, change, or perform any other maintenance to the blades.

Keep all personnel clear of all controls while inspecting, adjusting, changing, or performing maintenance to the blades.

The Lastec Mower utilizes high-lift blades.

1. Inspect all blades for proper installation, orientation, tightness, sharpness, and overall condition.
2. Tighten the bolts that hold the blade on to a recommended torque value of **75 ft-lbs**.
3. Ensure the lift fins are oriented to the top of the blades.
4. Verify that the mount bolts are secure, the blades are sharp, and free of any nicks, cracks, or bends.
5. Replace any damaged, dull, cracked, or missing blades before operating.

Lastec also offers low-lift blades and mulching blades for certain mowing applications. Contact your Lastec Mower dealer for further information about optional blades available.

3.14 Operator Seat

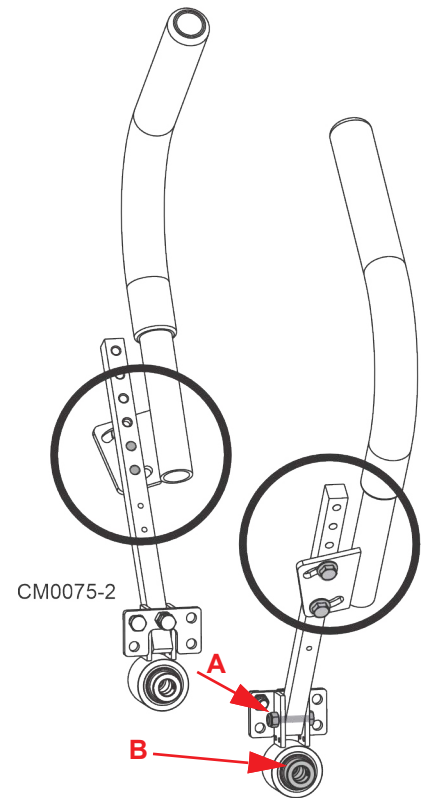
1. Ensure the operator seat pan is properly latched and operator seat is secure.
2. Ensure the seatbelt is secure and operable.
3. Adjust the seat forward or back so that the operator can easily reach the control panel, steering control levers, and mower deck height adjustment pedal.

3.15 Steering Control Levers

1. Ensure both steering control levers are properly linked, free of debris, and operating freely.
2. Slowly push both arms all the way forward, then all the way back.
 - a. Arms should both move smoothly and easily, with no sticking, obstruction, or uneven tension.
 - b. If the control arms are too high or low for operator comfort, reposition the control arm attachment bolts.
 - c. If the arms are too stiff moving in from neutral, loosen the bolt at the base of the arm. See A on illustration.
 - d. If the arms are too stiff moving forward and back, loosen the set screw in the collar. See B on illustration.

NOTE: Do not over-loosen the arms. Arms should “snap back” (lock) to neutral position, which is straight up and down and centered with the neutral position lock (notch in the frame).

3. Return and lock both control levers into neutral position.



3.16 Mower Deck Height



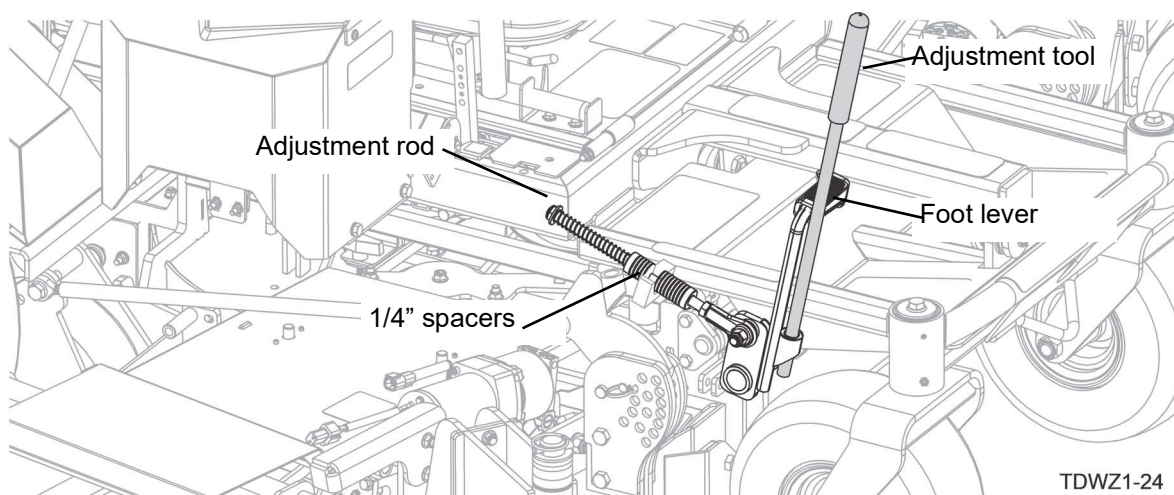
DANGER! Do not attempt to change the cutting deck height while the engine is running.

Your Lastec Mower has a deck height range of 1" to 4-1/2", in 1/4" increments. Make any deck changes before operating the mower.

All adjustment points must be set to the same height.

Center deck

1. Push the deck height control foot lever outward or use the adjustment tool (stored next to the seat) to relieve the tension on the adjustment rod.
2. Set the 1/4" spacers to the desired height and place the adjustment rod into the holder.
3. Release the foot lever or adjustment tool.



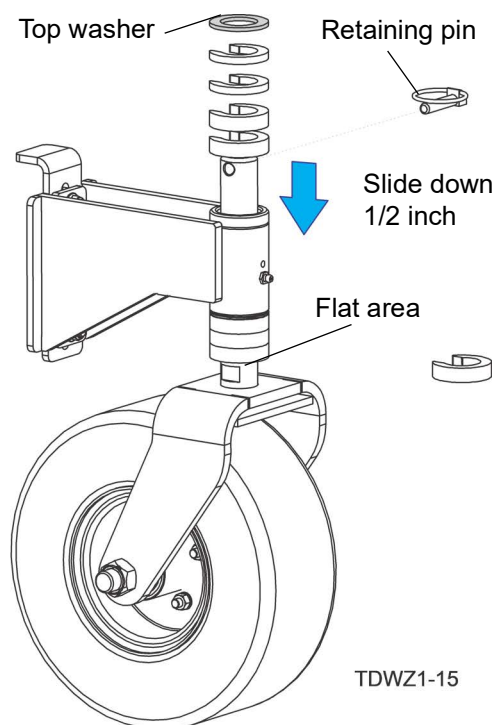
Wheel yoke height of cut adjustment



CAUTION! Raise the deck to transport before adjusting wheels. Do not adjust the height of cut with the decks in the lowered positions.

There are a total of (6) 1/2" spacers and (2) 1/4" spacers. With no spacers on the bottom area, the deck will be set at 1" height of cut.

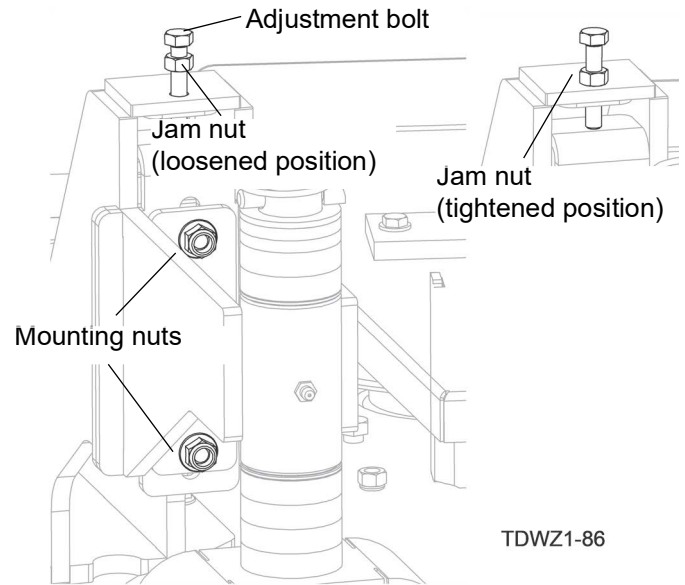
1. Remove the top retaining pin.
2. Remove the top washer.
3. Allow the caster assembly to slide down approximately 1/2 inch.
4. Reposition spacers as needed.
 - a. Spacers below the yoke mount are added or removed by aligning the spacers with the flat area at the bottom of the shaft.
 - b. Spacers above the yoke mount are added or removed by slipping them over the top of the shaft.
5. Replace the top washer.
6. Replace the retaining pin.



Wheel yoke fine adjustment

The six adjustable wheel yokes are factory set, and should not require frequent adjustment. However, fine adjustment is available if warranted.

1. Loosen (do not remove) the yoke mounting bolts.
2. Loosen the jam nut on the adjustment bolt.
3. Set the adjustment bolt to the desired position.
4. Tighten the jam nut.
5. Tighten the mounting bolts.

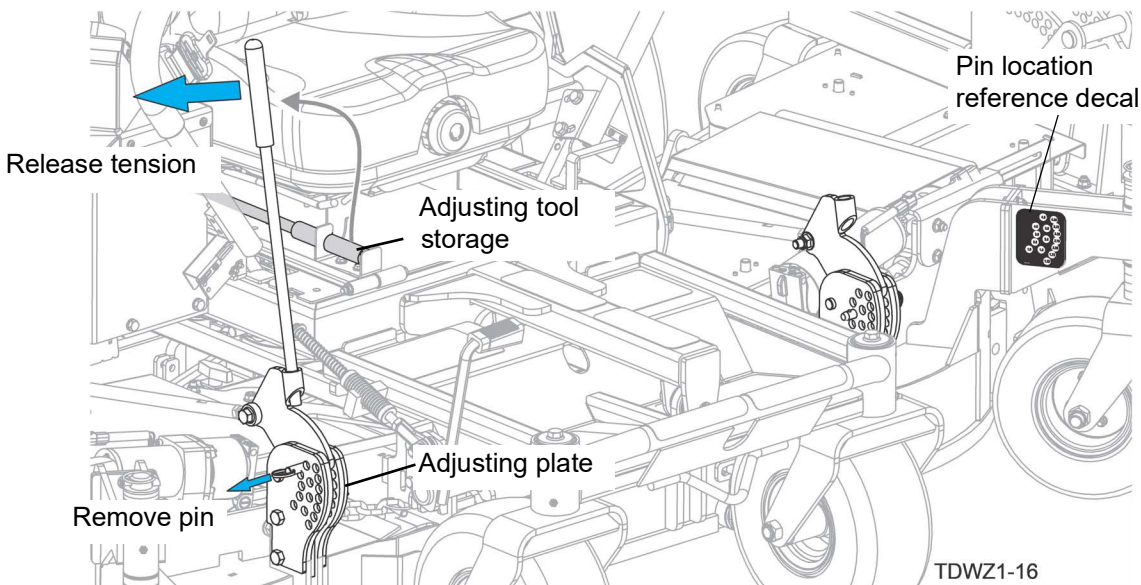


Rear deck wheels adjustment

1. Use the adjusting tool (stored under the seat) by inserting the end of the tool into the tube on the adjusting plate
2. Rotate the adjusting plate rearward, taking the pressure off of the retaining pin.
3. Remove the retaining pin.
4. Rotate the adjusting plate so that the desired height of cut holes are aligned.

NOTE: There is a reference decal for determining pin locations for various cutting heights. The heights are set in 1/4 inch increments.

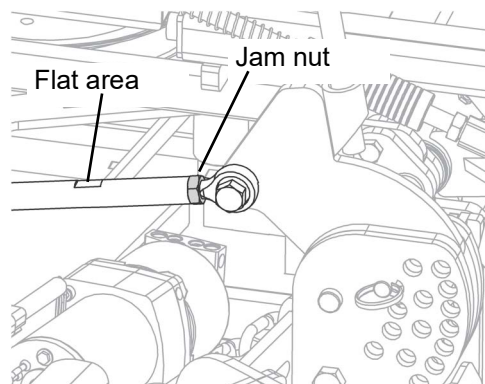
5. Insert the retaining pin into the alignment hole.



Rake adjustment

The rear wheels on the deck may be adjusted to acquire the desired deck rake so the rear of the blades are higher than the front of the blades.

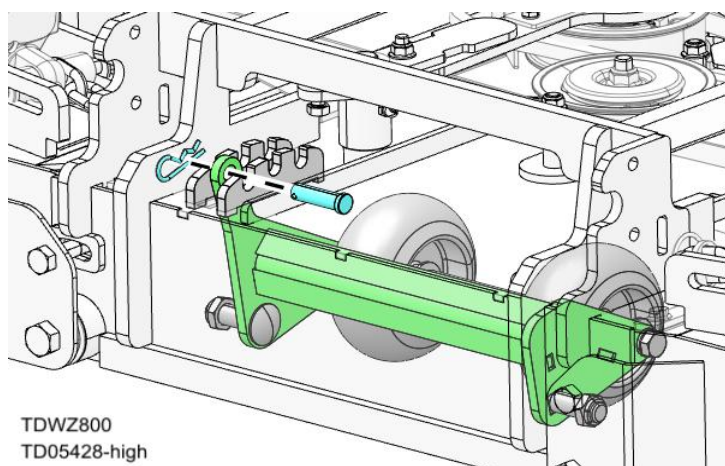
1. Loosen the jam nut near the front of the link tube (counter clockwise turn).
2. Use a 5/8" open end wrench on the flats of the linking rod.
3. Rotate the link rod clockwise to raise the back of the deck; counter clockwise to lower.
4. Tighten the jam nut when desired height is set.



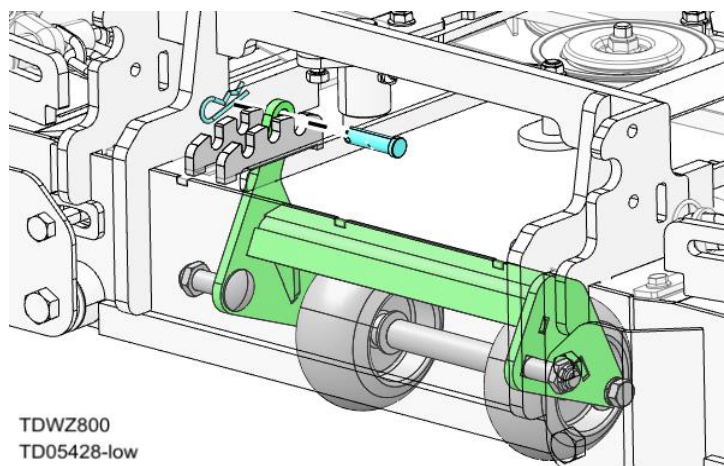
Anti-Scalp Wheel Adjustment

The anti-scalp wheels (located under the front of the middle deck) can be readjusted as needed.

1. Remove the pins.
2. Readjust the wheel frame to the proper height location for your cut level.
3. Replace the pins.



DECK HEIGHT < 2-1/2"



DECK HEIGHT > 3-1/2"

IMPORTANT. Any time the mower deck height is adjusted on the Articulator, check the anti-scalp wheels for proper positioning. The recommended anti-scalp wheel height settings are as follows:

- **Deck Height < 2-1/2"** = Set the anti-scalp wheels to the front hole,
- **Deck Height 2-1/2" to 3-1/2"** = Set the anti-scalp wheels to the center hole,
- **Deck Height > 3-1/2"** = Set the anti-scalp wheels to the rear hole.

3.17 Mower Deck Height Calibration



WARNING! Do not make any adjustments to the deck height while the engine is running.

Set the parking brake before making any adjustments to your Lastec Mower.

When you receive your Lastec mower, you may need to calibrate the mower deck height.

1. Park your Lastec Mower on a flat, level surface.
2. Turn off the engine and set the parking brake before making any adjustments.
3. Ensure both rear drive tires are properly inflated to 18 PSI.

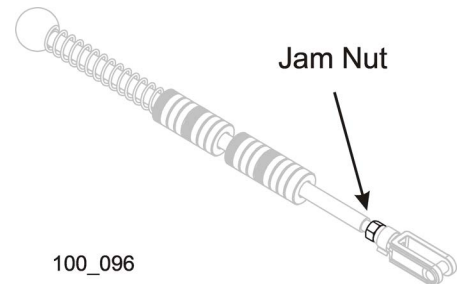
4. Ensure all wheels are pointing forward in the direction of travel.
5. Set all of the deck height adjustments to 3".
6. Starting with the center deck, measure the front of the deck from the **bottom of the blade cutting edge to the floor** across the front and rear of the deck, at points near the hinge pins.

A 3" block may be used. The measurements should be **level**, within $\pm 1/8$ ". Actual cutting height should be measured from the blades (ensure the blades are not bent from damage before taking measurements).

7. Adjust the center deck by using the jam nut on the center adjustment rod on the deck lift assembly.

NOTE: Tolerances for front-to-back is (positive) $+1/8$ inch in the rear -- *the rear should never be lower than the front edge*. Retighten the jam nut on the adjustment rod after leveling the deck.

8. Repeat the measuring technique on deck 2 and 4; use the rear wheel adjustment rod (see [Rake adjustment](#) in 3.16) to achieve desired rake.
9. Decks 1 and 5 require no calibration.



3.18 Discharge Configuration

WZ1000 has side, rear, and mulching discharge capabilities. The mower is shipped with the rear discharge not attached.

Lastec recommends using the side discharge.

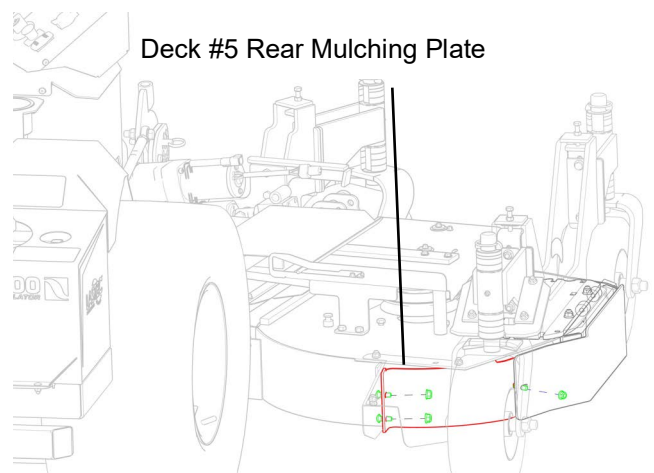
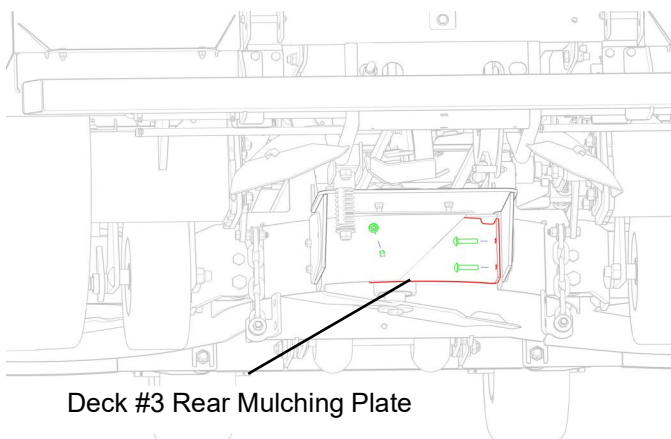
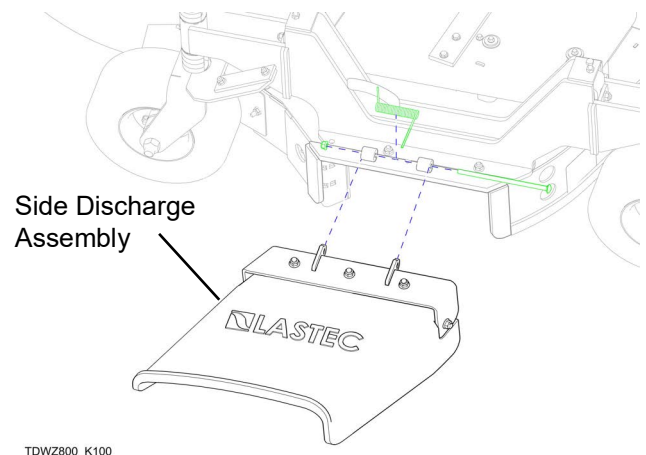
However, if necessary, following steps show setup for changing from side discharge to rear discharge and mulching.

Rear Discharge Configuration

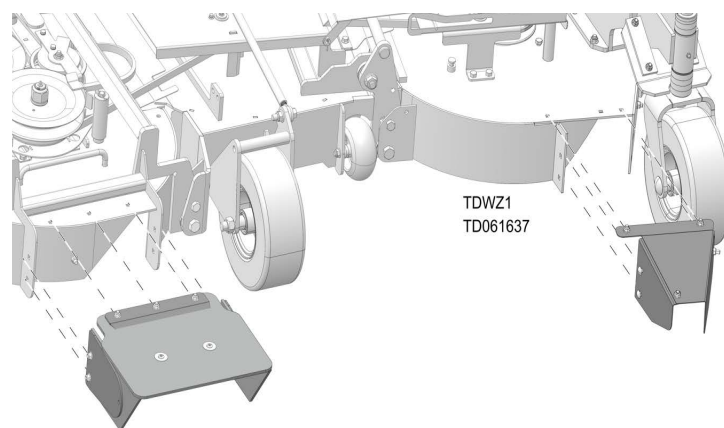
1. Park mower on level ground.
2. Turn key to OFF position and remove key.
3. Engage parking brake.
4. Lift deck assembly.
5. Remove 7" carriage bolt, flanged nut, and torsion spring from side discharge mount.
6. Slide side discharge assembly off of deck.

NOTE: For rear discharge complete above mulch baffle installation in addition to the following steps.

1. Remove Deck #5 rear mulching plate.
2. Remove Deck #3 rear mulching plate.

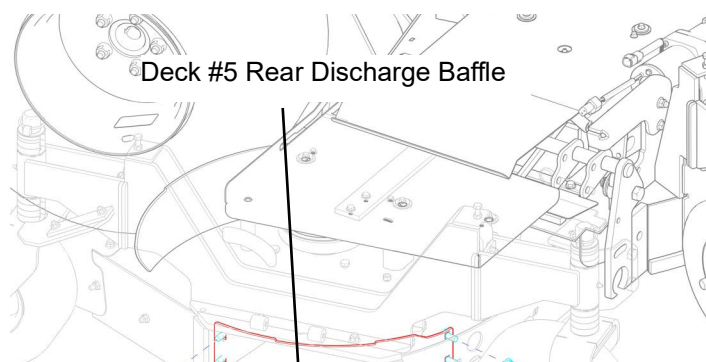


3. Install the rear chutes on Deck #3 and Deck #5.

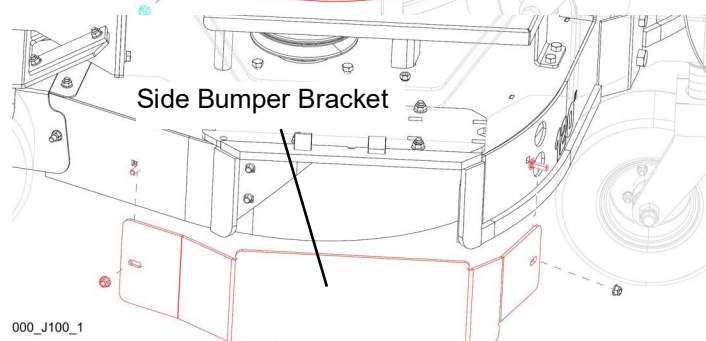


Mulching Configuration

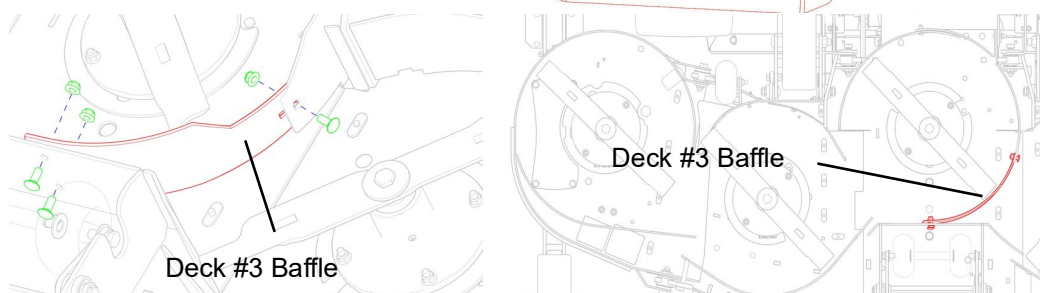
1. Install Deck #5 Rear Discharge Baffle using (4) 3/8" x 1" HH flange bolts NS (4) 3/8" flanged hex nylock nuts.



2. Install Side Bumper Bracket with (2) 5/16" x 1" HH flange bolts NS (2) 5/16" flanged hex nylock nuts.



3. Install Deck #3 Mulch Baffle using (3) 3/8" x 1" carriage bolts and (3) 3/8" flanged hex nylock nuts.



3.19 Tires and Wheels

1. Check the air pressure in the rear drive tires.
2. Maintain air pressure at 18 psi, or as needed to maintain level deck cutting.
3. Verify proper function of all mower deck wheels.

The wheels should turn freely without excessive side-to-side motion, and be free of debris.
4. Clean, adjust, replace, and grease as necessary.
5. Ensure each wheel swivels freely in the shaft pivot collar, and the bearings are in good condition.
 - a. Clean and grease the shaft collar assembly of any wheel that does not swivel freely.
 - b. Replace the bearings, if necessary.

3.20 General Inspection

Verify that all warning decals are in place, visible, and legible.

Verify that all covers and safety devices are properly installed and secure.

Ensure the discharge chute is clear of debris, properly mounted, and in good condition.

Inspect entire Lastec Mower for loose or entangled parts, debris, obstructions, misplaced tools, or any other possible safety hazards, equipment hazards, or projectile hazards.

3.21 Engine

While the engine is running, check the exhaust. During proper operation, the exhaust should be colorless. If the engine runs continuously with dark exhaust, stop the engine and correct the problem before operating your Lastec Mower.

Listen for any unusual engine noises. If the engine suddenly slows down or accelerates, makes any abnormal noises, runs roughly, or displays any other usual characteristics, stop the engine and correct the problem before operating.

3.22 Hour Meter

The hour meter is located on the control panel. This meter records the total hours on the engine, and cannot be reset. You may wish to record the hour meter reading prior to operation for tracking of maintenance schedules, job timing, billing, or other records.

3.23 Maintenance Checklists

Complete the appropriate maintenance checklists in a timely manner. (See section 5).

3.24 Pre-Operation Equipment Inspection Checklist

Perform the following equipment inspection **prior to each operation** of the Lastec Mower:

- ☐ Verify that the parking brake is set.
- ☐ Check the fuel level.
- ☐ Check engine oil level and condition.
- ☐ Check the air cleaner and filter elements for contamination or debris.
- ☐ Brush out and clean the radiator screen.
- ☐ Clean entire mower deck area under operator seat pan of any grease, oil, fuel, grass, or debris.
- ☐ Check coolant level and condition in overflow tank.
- ☐ Check hydraulic fluid level and condition.
 - Add if low - do not overfill.
 - Change oil and filter if necessary.
- ☐ Inspect the entire hydraulic system for leaks.
- ☐ Adjust hydrostatic pumps if needed.
- ☐ Check both hydrostatic pump belts and tension springs for proper installation and condition.
- ☐ Check the mower deck drive belt and idler tension spring for proper installation and condition.
- ☐ Check all mower deck belts and idler tension springs for proper installation and condition.
- ☐ Inspect all blades for proper installation, orientation, tightness, sharpness, and overall condition.
- ☐ Be sure the seatbelt is secure and operable.
- ☐ Be sure the operator seat pan and engine cover are properly closed, latched, and secure.
- ☐ Adjust the operator seat for proper operator position.
- ☐ Ensure both steering control levers are properly linked, free of debris, and operating freely.
- ☐ Set the mower deck height to the desired level.
- ☐ Calibrate the mower deck height adjustment rods if needed.
- ☐ Check the air pressure in the rear drive tires.
- ☐ Verify proper function of all wheels.
- ☐ Verify that all warning decals are in place, visible, and legible.
- ☐ Verify that all covers and safety devices are properly installed and secure.

- ☐ Ensure the discharge chute is clear of debris, properly mounted, and in good condition.
- ☐ Inspect entire Lastec Mower for loose or entangled parts, debris, obstructions, or neglected tools.
- ☐ Check engine for abnormal exhaust or sounds.
- ☐ Record the hour meter setting if desired.
- ☐ Complete the appropriate maintenance checklist (section 5).

SECTION 4 OPERATING PROCEDURES



DANGER! Do not run the engine indoors.

Do not place hands or feet near moving blades.



WARNING! Do not allow anyone to operate your Lastec Mower without understand this manual, all instructions on the machine, and all controls in their entirety. Failure to comply may result in personal injury and/or equipment damage.

PERSONNEL

Do not operate the tractor while under the influence of alcohol or drugs.

Wear eye and ear protection during operation.

Wear the seat belt during operation.

Do not allow children to operate this machine or be in the area when operating.

TERRAIN

Inspect the area where the tractor is to be used. Remove all stones, sticks, wire, or other foreign objects which could be thrown by the blades.

Do not mow on slopes greater than 15 degrees (25%).

Avoid starting and stopping on slopes. Avoid making sudden changes in speed or direction. Make turns slowly and gradually.

Disengage the blades when crossing gravel drives, walks, or roads and while not cutting grass.

Watch for holes, ruts, bumps, or other terrain features that could affect machine control.

FUEL

Do not smoke or produce any heat source while handling fuel.

Keep the nozzle in contact with the rim of the fuel tank until fueling is complete. Do not use a nozzle lock-open device.

Clean up oil or fuel spillage and remove any fuel soaked debris immediately.

TRANSPORT

Use properly secured full width ramps for loading and unloading your Lastec Mower for transport.

Ensure ramps are a maximum of 15 degrees of slope.

Use recommended tie-down points.

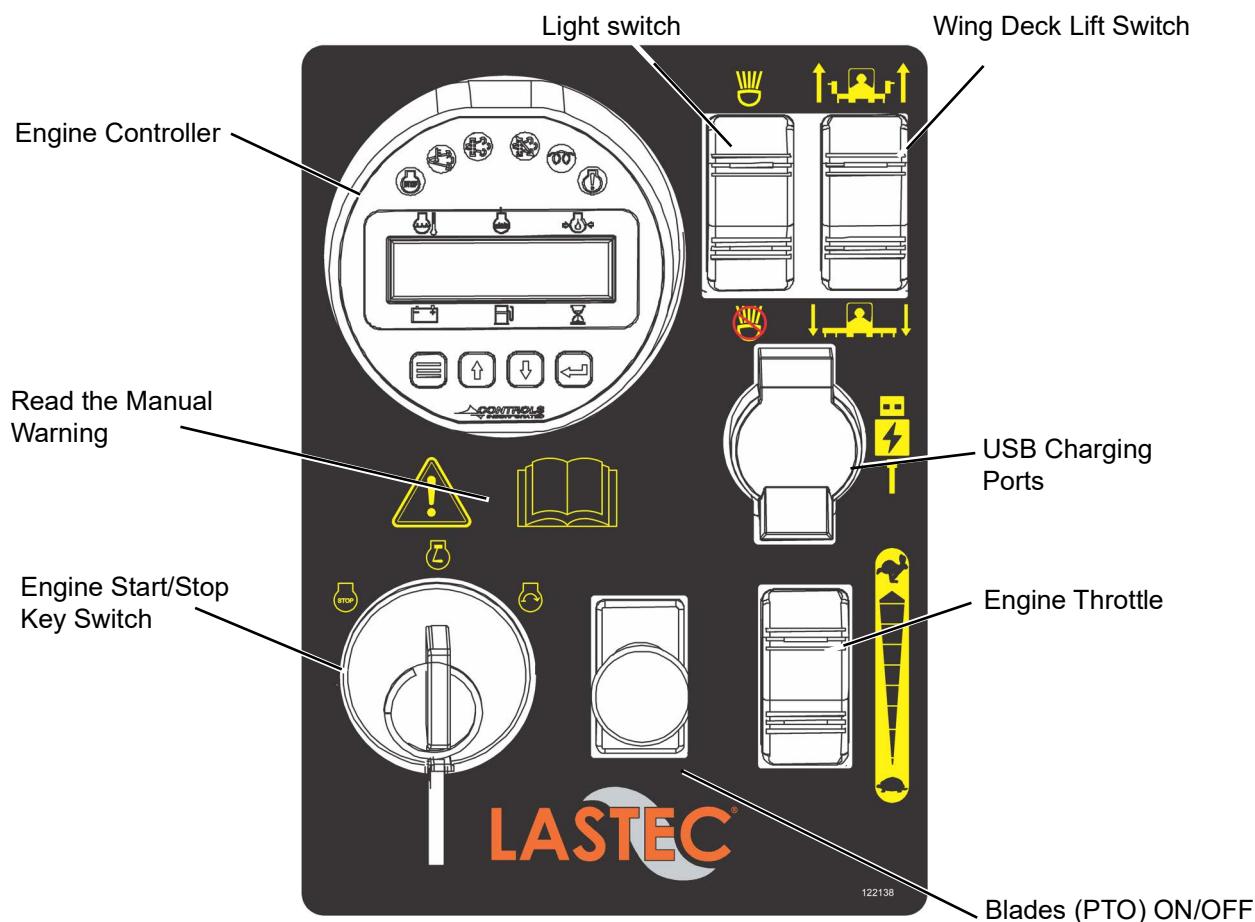
Raise and lock the articulating decks for transport.



CAUTION! Perform the pre-operation equipment inspection before attempting to operate your Lastec Mower.

Perform the appropriate maintenance schedule(s) before attempting to operate your Lastec Mower.

4.1 Operator Control Panel



- **ENGINE CONTROLLER** - monitors and controls engine functions. [See Section 4.4](#) for complete instructions concerning the controller. The Up/Down buttons   also act as alternate throttle control when not in menu mode.
- **READ THE MANUAL WARNING** - reminds operators that the manual must be read before operation.
- **ENGINE START/STOP KEY SWITCH** - standard three position key switch. T
 -  - turns engine off
 -  - normal position while engine is running
 -  - cranks engine to start

NOTE: When the key switch is in the RUN  position,

- The Controller will power up so the operator may check hours, voltage, coolant temp, fuel level, etc
- The deck lift would function normally with the safety logic still in effect
- The USB ports will charge
- The headlights would be available

However, operating in the RUN position without the engine running may rapidly drain the battery.

- **LIGHTS** - turns headlights (ROPS bar) On/Off
- **WING DECK LIFT SWITCH** - raises or lowers the wing decks.

- **USB CHARGING PORTS** - two USB chargers for operator's convenience.
- **ENGINE THROTTLE** - controls the engine speed
- **PTO (BLADES) ON/OFF** - engages/disengages the cutting blades

4.2 Starting The Engine

The following safety conditions must be met before the engine will start:

- Operator's seat is occupied.
- Blades switch on the control panel is in the OFF position.
- Control levers are locked into NEUTRAL position.
- Parking brake must be set to the ON position.

1. Turn the key switch clockwise to the START  position.

NOTICE Cranking engine for more than 10 seconds may cause starter motor failure or damage. If the engine does not start in 10 seconds, allow a 60 second cool down period between starts. If, after several attempts, the engine will still not start, discontinue the starting process until the cause of malfunction is determined.

2. Release immediately when the engine starts.

NOTE: The key switch returns to the RUN  position.

3. Adjust engine speed with the throttle switch on the control panel (or by using the up/down arrows on the engine controller).
 - a. Press and hold for large speed adjustments;
 - b. Press without holding for incremental adjustments.

NOTE: Do not overpower the engine.

4.3 Stopping The Engine

1. Stop the engine by throttling down to a slow idle.
2. Turn the ignition key switch to the OFF (STOP) position.
3. Wait for all motion to stop.
4. Set the PTO switch in the OFF position.
5. Set the parking brake before dismounting your Lastec Mower.

4.4 Engine Controller

Menus

The operator menu contains information about the engine and control panel.

NOTE: Once you have accessed the menu system, the four key pad buttons will be used for menu navigation and therefore not available for engine speed control if the engine is running.



1. Press and hold the Menu button.

While pressing the menu button a message will appear to also press Enter to access.

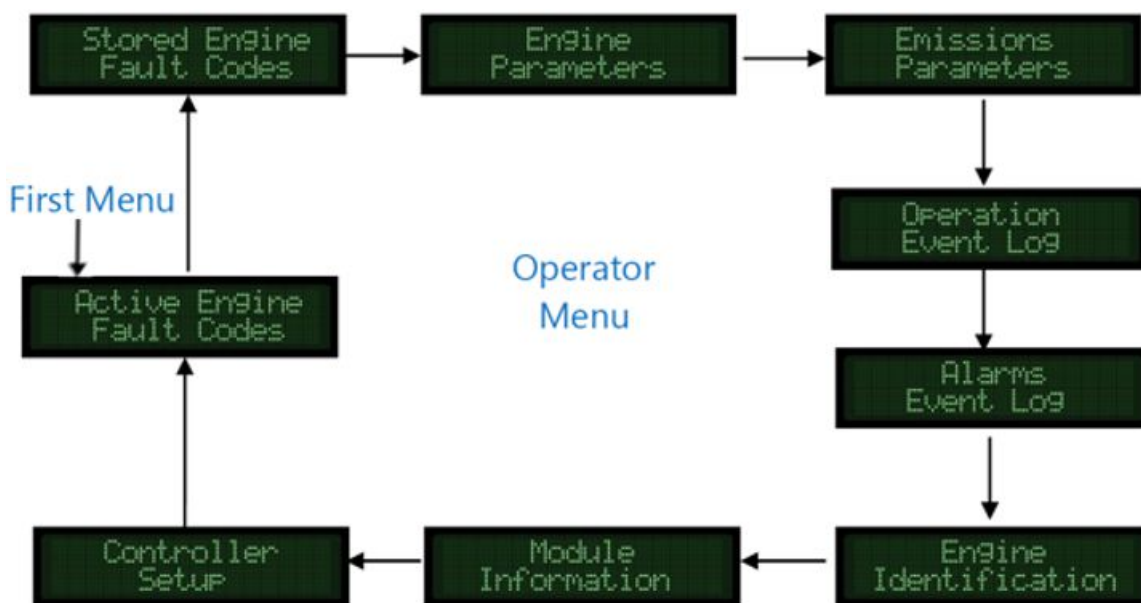


2. Press the Menu key to index the menu topic to the next item in the list.
3. Press the Up arrow key at your desired topic.
 - a. The Up arrow key will index the screen each time it is pressed.
 - b. Pressing the Down arrow key will index in the reverse order.

4. Press the Enter key to index the topics backward.

The index is circular so you will eventually wrap around to the beginning of the operator menu structure.

5. Press the Menu key at any time while in a topic will return you to the main menu topic heading.
6. Press the Menu and Enter keys simultaneously to exit.



- **ACTIVE FAULT CODES** Shows Active Fault Codes as broadcast by the engine ECU by pressing the up arrow button.
- **STORED FAULT CODES** Shows Stored Fault Codes as broadcast by the engine ECU by pressing the up arrow button.
- **ENGINE PARAMETERS** Shows unique engine information broadcast by the ECU by pressing the up arrow buttons. This information includes:

■ Total Hours	■ Engine Torque
■ Requested TSC	■ Coolant Temperature
■ Rated Speed	■ Fuel Rate
■ Low Idle Speed	■ Manifold Temperature
■ Load at RPM	■ Potential Voltage

- **EMISSIONS PARAMETERS** Shows the engine emissions data as broadcast by the ECU by pressing the up arrow button. This data includes:
 - DOC Inlet Temperature
 - DPF Inlet Temperature
 - DPF Outlet Temperature
 - Regen Options
 - DPF Differential Pressure
 - DPF Soot Load
 - Time at Last Regeneration
 - Active Regen Status
 - Regen Inhibit Status
- **OPERATION EVENT LOG** Records the engine start and stop events and tags them with the engine run time hours. The Alarm can be viewed in the Operator menu area.
- **ALARM EVENT LOG** Any monitored pre alarm or alarm will be recorded in the Operator menu section. The event will be tagged with the actual engine run time hours at which the event occurred. The log stores the last 32 events.
- **ENGINE IDENTIFICATION** Shows on the engine model number and serial number.
- **MODULE INFORMATION** Shows the Module Part number and Software Version.
- **CONTROLLER SETUP** When navigating through the Operator menu, you will arrive at the Controller Setup screen. To ensure proper function of the engine, settings in this menu are password protected and should only be accessed by a qualified technician or dealer.

Panel Engine Safety Protections

PREALARMS AND ALARM

The engine protection is managed by the engine's ECU. The display will show lamp status and trouble code information based on the ECUs messaging to the display. The control panel also monitors the critical engine parameters of speed, coolant temperature and oil pressure. Pre Alarms are warnings that a parameter is nearing a point where engine damage may occur. Alarms are at the limit of the engine operating without causing damage. Therefore, alarm conditions may shut the engine down, or invoke other behavior as selected, while the pre alarms will allow the engine to continue to run. The control will log the condition and illuminate a yellow LED lamp, flashing the affected parameter. The alarm condition will also be accompanied by a red LED lamp and a specific message of what parameter caused the engine to shut down.

SAFETY SHUTDOWNS

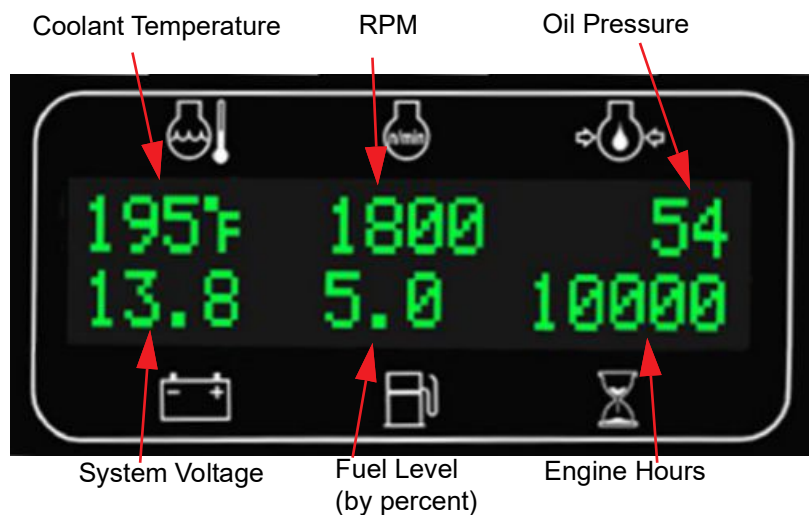
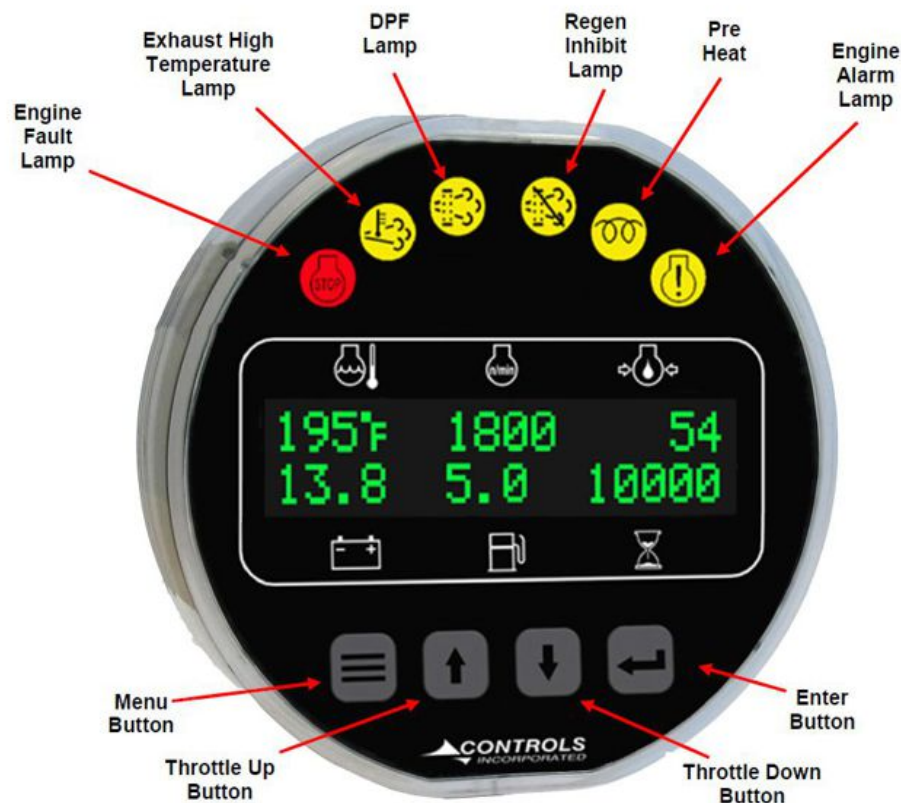
The engine's ECU has control over the engine under safe conditions. If any of its critical parameters are out of tolerance, the ECU can take a variety of actions including derating of the engine horsepower or complete engine shut down. The display will illuminate the red or yellow LED as instructed by the ECU and display any trouble code as presented from the ECU.



Pre alarms and alarms back up the ECUs safeties in the event the ECU shutdowns were not enabled or a more conservative setting is desired. If the parameter falls outside of the normal operating range, the control panel will stop the engine by removing power to the fuel solenoid or ignition circuit. The display will indicate the reason for the shutdown and a red alarm lamp will be illuminated in the upper left corner of the module.



In the event of low oil pressure alarm or high temperature alarm, the engine horsepower is derated To ensure the traction drive function does not become inoperable unexpectedly.



Emissions Monitoring - Regeneration

The engine ECU continuously monitors the engine's emissions parameters. When certain conditions are reached, the ECU will indicate that a regen is needed. The information can be obtained by entering the Emissions Parameters menu (described above).

The regen status can be set to two different states, Auto or Regen Inhibit. When the unit is in Regen Inhibit, the ECU will not be able to initiate a regen. This state should be used sparingly and for a brief period of time. The default setting is Auto, which allows for the ECU to initiate a regen. Regeneration is initiated and controlled solely by the engine ECU.

REGENERATION LEVELS

0 – **PASSIVE** the normal engine operation where the elimination of soot/ash is accomplished by the current engine speed and load.

1 – **AUTO** the ECU enables automatic active regeneration due to the current soot/ash load. There is no effect on engine performance or operation during automatic active regeneration. If the regen inhibit mode is activated, a “Disable Inhibit – Yes/No” prompt will appear. As the regen continues to be inhibited, an “Auto Regen Needed” screen will scroll with the standard screen.

2 – **AUTO/PARKED** as the soot/ash levels increase, the ECU may continue as in level 1, or may send a Parked Regen request (DPF Lamp).

3 – **PARKED** the ECU will send prompts to the controller and light the DPF Lamp (see below).

4 – **SERVICE REGEN** the Kubota Service Regen Required prompt will appear. At this stage, a service technician is required to perform a regen.

5 – **SERVICE REQUIRED** the engine requires service by an authorized dealer.

PARKED REGENERATION PROCESS

When a regen is required, the DPF Lamp lights. This lamp will remain on until a regen has been completed.



The controller will prompt the Operator that a regen is needed. To proceed, the operator will press the Enter button for yes.



If the operator chooses No, then the Parked Regen Needed will continue to scroll with the normal operating screen. The prompt will automatically reappear after two minutes.



If the Operator chooses Yes, the controller will alert the Operator that the engine RPM may increase. The Operator will press enter to acknowledge.



The next prompt alerts the Operator that the regeneration requires the engine to be set to the engine idle speed. The first screen is for the Operators acknowledgment of the process, the second screen is the acknowledgment of the actual speed.



Set Min Speed
N=Menu Y=Enter



Min: 800 Spd: 800
N=MENU Y=ENTER

The Min selection is set by the ECU. The speed selection is the actual speed of the engine. The down arrow key is utilized to lower the speed. Once the actual speed matches the min speed, the operator presses the Enter key.

To ensure that the engine load is removed, the regen process requires that the parking brake input (Pin B5 - closed to ground) and the Neutral Switch (Pin B2 – closed to ground) are applied. ***It is not acceptable to initiate the parked regeneration when the engine load is applied.*** A prompt will appear for each state, with the operator pressing Enter to confirm.



Apply Park Brake
N=MENU Y=ENTER



Put in Neutral
N=Menu Y=Enter

After the operator acknowledges a final prompt screen, a regen request will be sent to the engine ECU. At this time, the ECU will activate the full regen process.



Begin Regen
N=Menu Y=Enter

REGEN PROGRESS

During the parked regen, the message Regen Starting will appear followed by a progress status bar.



Regen Prog 1%

This bar will remain at a maximum of 10% until the engine achieves the desired temperature for soot/ash elimination.

At the end of the process, the controller will prompt the operator that the regeneration has been completed. The operator must acknowledge this by pressing the Enter button prior to resuming normal operation and loading the engine.



REGEN FAIL / ABORT

The regen process will be aborted if either the Neutral Switch or the Parking Brake circuits open during the process. When this occurs, a message will appear requiring the operator's acknowledgement.



The condition causing the abort will need to be rectified and the regen process reinstated from the beginning.

If a regen fails or aborts, the controller will post a message such as Regen Failed or Regen Aborted. Each screens will require the operator's acknowledgment. When these circumstances occur, the operator should contact a dealer for instructions.

4.5 Motion Control



WARNING! Clear the entire area of all non-essential personnel before operating your Lastec Mower.

Verify that all safety covers are in place and secure before operating your Lastec Mower.

Wear the seat belt, ear, and eye protection during operation.

Your Lastec Mower is equipped with a dedicated hydrostatic pumps for each rear drive wheel. These pumps are controlled separately with each of the steering control levers (located to the left and right of the operator seat).

Pushing a steering control lever forward activates the hydrostatic pump on the corresponding side, turning the drive wheel in the corresponding direction.

The steering control levers also govern the ground speed of your Lastec Mower. The farther from the neutral position the lever is pushed or pulled, the faster the corresponding drive wheel turns.

Ground speed



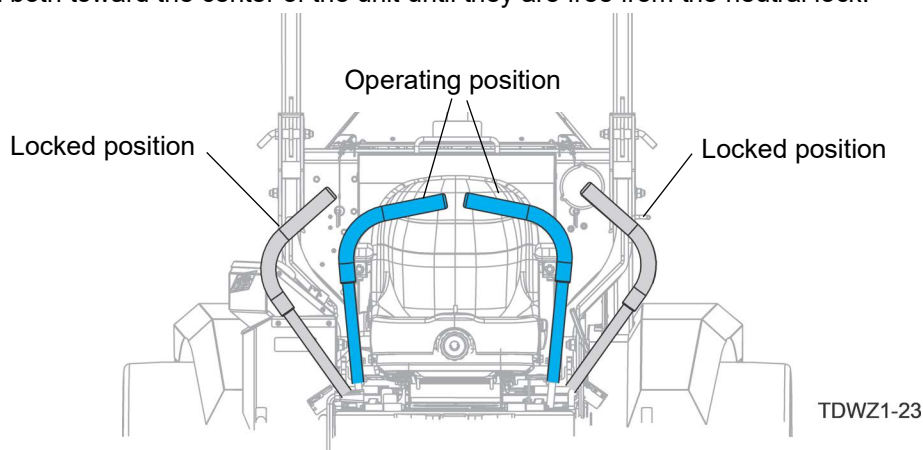
WARNING! Maximum ground speed is intended for transport to and from the work site only, and should not be attempted during any cutting operation.

Reduced ground speed is required when operating on severe contours, when cutting excessively tall, wet, or thick grass, or when traveling up or down large or steep hills.

Changing direction at high ground speed, whether cutting or transporting, can cause damage to the turf, especially in wet conditions. Direction changes should be made by slowing to a near or complete stop (returning the control levers to neutral position), and slowly changing the control levers positions to begin travel in the desired direction. This prevents turf damage, as well as prolonging equipment life and promoting safer operation of your Lastec Mower.

START MOTION

1. Ensure that the machine is on flat, level ground.
2. Start the engine in accordance with section 4.1 of this manual.
3. Release the parking brake lever.
4. Remove both steering control levers from the neutral lock position.
 - a. Grasp each steering control lever with each hand.
 - b. Pull them both toward the center of the unit until they are free from the neutral lock.

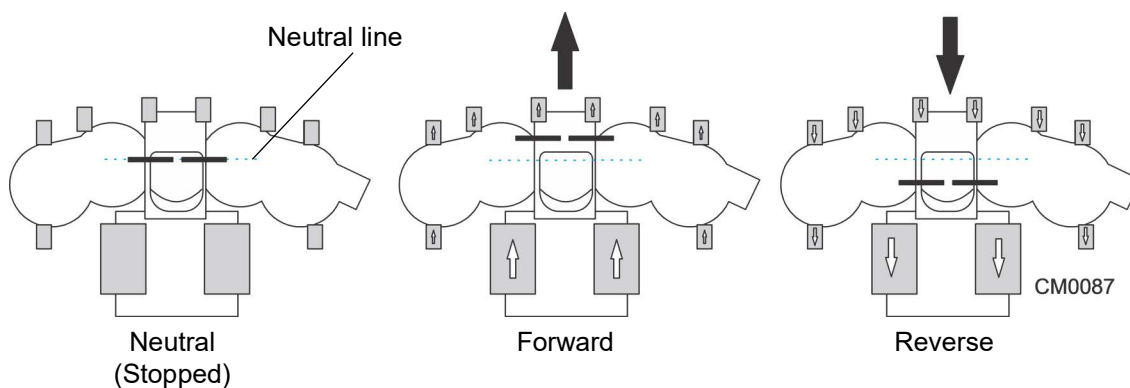


Steering levers

NOTICE In all cases, the further from neutral a steering lever is pushed/pulled, the faster the travel for that drive wheel.

Avoid pivoting on one wheel. Turf damage may occur.

STRAIGHT TRAVEL

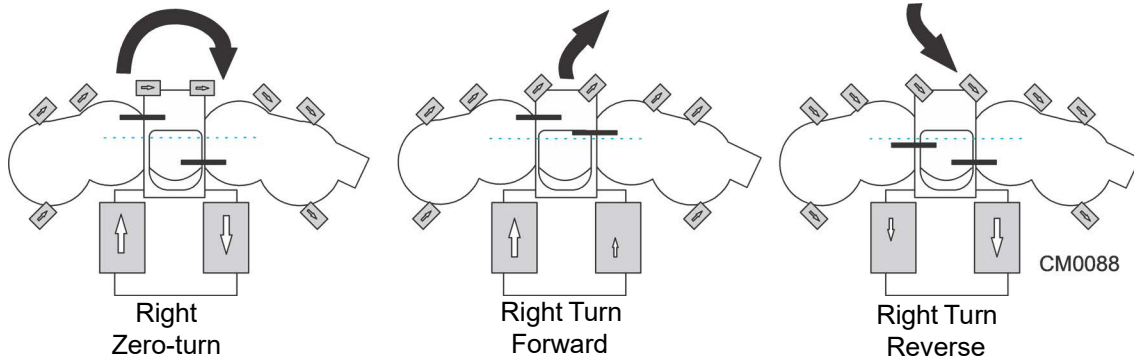


- **Neutral/Stop:** Position (or release) the control levers in the central neutral position.

NOTE: When the control levers are released, they automatically return to the neutral position, stopping all motion.

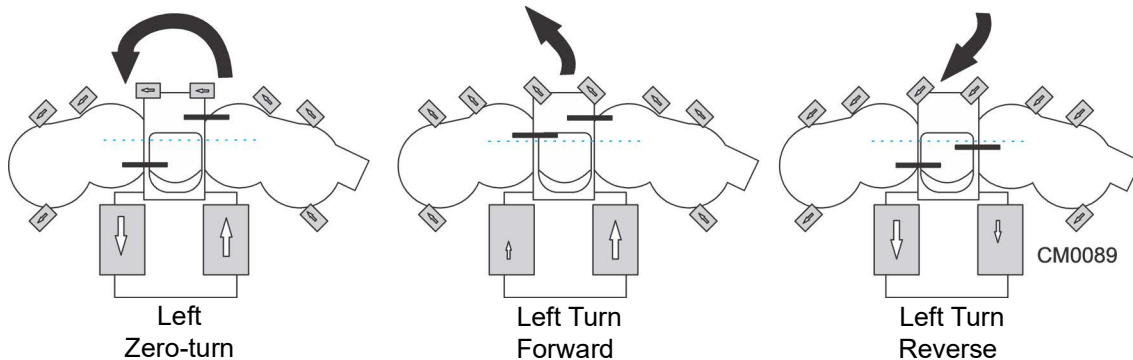
- **Forward:** Push both control levers forward evenly.
- **Reverse:** Pull both control levers backward evenly.

RIGHT TURNS



- **Right Zero-turn:** Evenly push the left control lever forward slowly while pulling the right control lever backwards.
- **Right Turn Forward:** Push the left control lever full forward while pushing the right control lever slightly forward.
- **Right Turn Reverse:** Pull the right control lever full backward while pulling the left control lever slightly backward.

LEFT TURNS



- **Left Zero-turn:** Evenly push the right control lever forward slowly while pulling the left control lever backwards.
- **Left Turn Forward:** Push the right control lever full forward while pushing the left control lever slightly forward.
- **Left Turn Reverse:** Pull the left control lever full backward while pulling the right control lever slightly backward.

4.6 Recommended Blades

LOW-LIFT BLADE

Low-Lift Blade is recommended for 1"-2" cutting height. Use a Low Lift Blade when the conditions are dry, the region is experiencing a drought, in sandy soil areas or when performing seasonal scalping. When conditions like this are evident, lift created by the cutter blades can be reduced, decreasing the abrasion wear to the cutter blades and deck caused by sand. The Low Lift Blade will also help reduce cutter deck blowout during the conditions stated above.

HIGH-LIFT BLADE

High-Lift Blade is recommended for cool season grasses and cut heights of 2" and above, unless in sandy conditions. These blades are shipped standard on all mowers.

Use a High Lift Blade when the conditions are extremely wet or heavy. The High Lift Blades will create greater lift that may be needed in difficult cutting conditions. Additional deck cleaning may be required when using High Lift Blades.

MULCHING BLADE

Mulching blades are designed for use with a mulching (discharge block-off) plate or with a complete mulching system. These blades feature a high lift, "double-cut" edge for quick, thorough shredding of grass clippings, leaves and debris.

4.7 Mower Deck Operation



DANGER! Stay clear of blades during operation.



WARNING! Clear area of all non-essential personnel before engaging the blades.

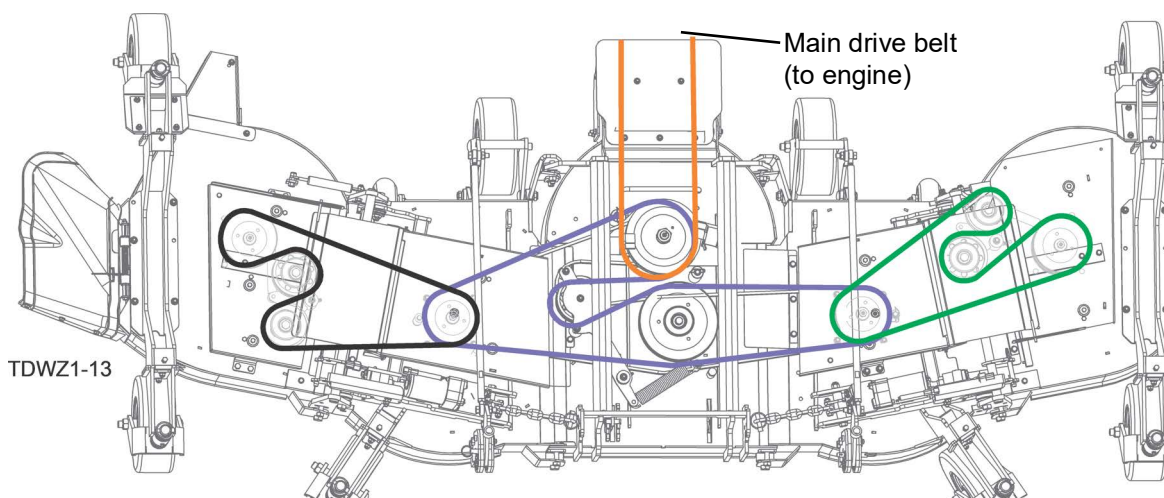
Verify that all safety covers are in place before operation.

Do not aim/point/etc. the discharge in the direction of bystanders, vehicles, or buildings.

Do not operate your Lastec Mower when children are present.

Deck belts

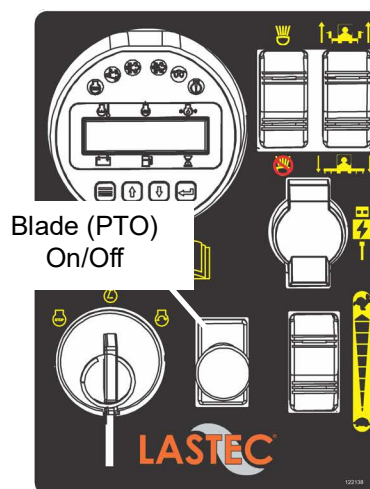
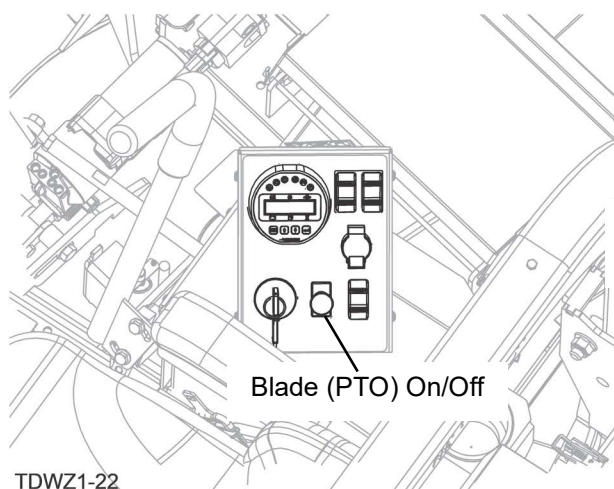
All decks are belt driven - the drive belt (located under the operator seat pan) drives the main deck, and three deck belts (running between the decks) drive each deck. The individual decks pivot at blade level. The idler belt tension system adjusts the belt length as necessary during articulation, holding the Lastec Mower the contour of the ground with precision.



Blades (PTO)

Blade will not engage without a properly seated operator and the engine running.

From the operator seat, pull the Blades (PTO) switch to the START position.



Deck lift

Both wing decks raise and lower simultaneously.

The engine does not need to be running to raise/lower the wing decks.

Decks can be locked in the upright position. [See Section 4.8.](#)

1. Ensure the blades are disengaged.
2. Ensure the operator is properly seated.
3. Press and hold the switch for raising/lowering the wing decks.

4.8 Transporting the Mower

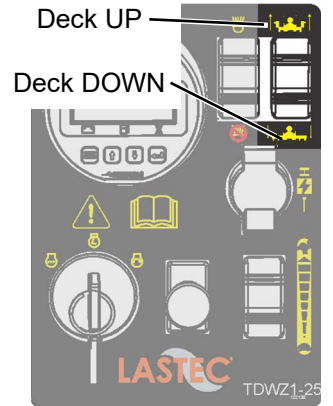


WARNING! Use properly secured full width ramps for loading and unloading your Lastec Mower for transport.

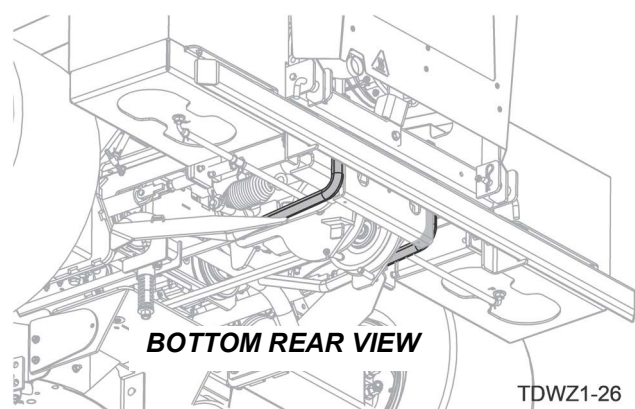
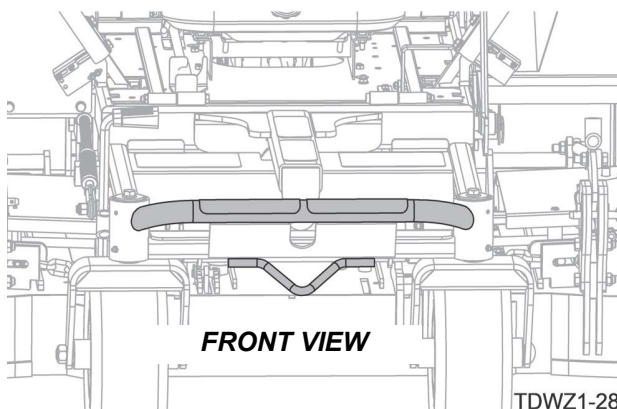
Ensure the trailer is rated for the total weight of the mower.

Ensure ramps are a maximum of 15 degrees of slope.

Use recommended tie-down points.



1. Connect the trailer to the transport vehicle according to the trailer manufacturer's instructions.
2. Ensure the safety chains are crossed beneath the hitch and properly attached.
3. Lower the ramp. (Ramp slope does not exceed 15 degrees.)
4. Use a spotter to help back the mower up the ramp.
5. Shut off the engine, remove the key, and engage the parking brake.
6. Tie down the machine between the front caster wheels and the rear bumper.



7. Refer to local regulations for tie-down requirements.

SECTION 5 MAINTENANCE

5.1 Maintenance



WARNING! Remove all non-essential personnel, especially children, from the maintenance area..



CAUTION! Proper maintenance of your Lastec Mower is important.

ALWAYS perform the appropriate maintenance checklist at the proper time interval.

Failure to complete the appropriate maintenance checklists at the proper time intervals will cause damage to your Lastec Mower, unsafe operating conditions, substandard performance, and may void the warranty of your Lastec Mower.

Warranty issues are dependent upon proper maintenance.

Along with completing the Pre-Operation Equipment Inspection Checklist *each time* you operate your Lastec Mower, complete the following Maintenance Checklists at the indicated time intervals. ([See Section 5.14](#) for maintenance chart.)

5.2 First 8 Operating Hours

- Check torque and tighten center spindle nut, if needed, to proper specification (See *Deck 3 Spindle Assembly* in Parts manual for correct specification).

5.3 Every 8 Operating Hours or Daily

- Complete the Pre-Operation Equipment Inspection Checklist.
- Clean off all debris, including any under covers, that may have accumulated during operation.

NOTE: Allow mower to cool before washing; water may be drawn into hot bearings if cooled too rapidly. Compressed air is recommended for removing debris.

NOTE: Remove belt covers by rotating latches CCW by a half turn with a 7/16 wrench or socket. To reinstall, align belt covers with locating tabs, and turn latches CW by a half turn with a 7/16" wrench or socket. Verify the belt covers are securely fastened.

- Grease all grease zerks.
- Inspect the spindle bearing grease seals (under each deck) for grease leakage or improper seating.
- Lubricate all joints and moving parts which are not equipped with grease fittings.
- Verify that all brake cables are functional, securely fastened and in good condition.
- Verify proper installation, operation, and unobstructed flow of grass chute.
- Inspect entire Lastec Mower for loose or entangled parts, debris, obstructions, misplaced tools, or any other possible safety hazards, equipment hazards or projectile hazards. Clean off mowers of any dirt, grease, or oil.
- Depending on current cutting conditions, brush out and clean the radiators and hood grills periodically during the day to ensure proper flow of cooling air.

5.4 First 25 Operating Hours

- Change the hydraulic oil and filter.

5.5 First 50 Operating Hours

- Change engine oil and filter.¹
- Check torque and tighten center spindle nut, if needed, to proper specification (See *Deck 3 Spindle Assembly* in Parts manual for correct specification).

5.6 Every 50 Operating Hours

- Inspect engine fuel lines and clamps. Replace as needed.¹
- Grease all blade spindle bearing housings. Fill until grease purges from weep hole in bearing housing.
- Inspect all bushings for wear. Replace as needed.
 - Deck lift (2x front and 2x rear)

1. Refer to the Engine Operator's Manual accompanying this manual.

- Deck wing actuator pivot (left and right)
- Deck pivots (8 total)
- Belt idler pivots (3 on deck, 1 on mule drive)
- Check and clean if necessary any debris that may have accumulated during operation.

5.7 Every 100 Operating Hours

- Inspect air cleaner and filter elements. Replace as needed.¹
- Inspect engine fan and alternator belt. Replace as needed.

5.8 Every 200 Operating Hours

- Change engine oil and filter. See Section “3.4” Engine Oil.

5.9 Every 400 Operating Hours

- Replace fuel filter cartridge.¹
- Change the hydraulic oil and filter.

5.10 Every 500 Hours

- Inspect and re-pack all wheel bearings.
- Flush fuel tanks.¹
- Flush radiator.¹
- Replace engine fan and alternator belts.¹
- Check engine valve clearance¹
- Check head mounting bolt torque (while doing valve check)¹

5.11 Annual

- Inspect air cleaner filter elements and replace if necessary.¹
- Change the hydraulic oil and filter.
- Rotate tires.

5.12 Bi-Annual

- Replace fuel lines and clamps.¹
- Replace radiator hoses and clamps.¹
- Replace battery.

5.13 Urethane Bushings

 **CAUTION!** Bolts holding urethane bushings must remain tight. Failure to keep these spacers tight will result in premature wear on the bolts, and equipment damage.

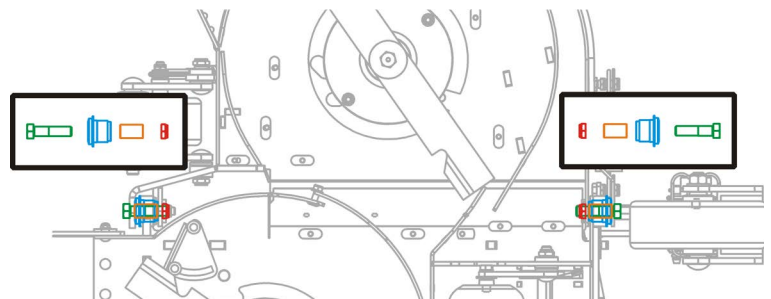
Urethane bushings ride on spacers that fit between the rotating pieces of framework, held tightly in place with bolts. **It is important that the spacers remain tight between the framework at all times.**

Ensure that ALL bolts associated with urethane bushings are tight at all times.

Urethane bushing applications may be associated with grease points.

The grease, in these cases, is used to protect the moving parts from corrosion due to water or other contaminants, and is not used for friction reduction.

Ensure grease fills the cavity to prevent infiltration.



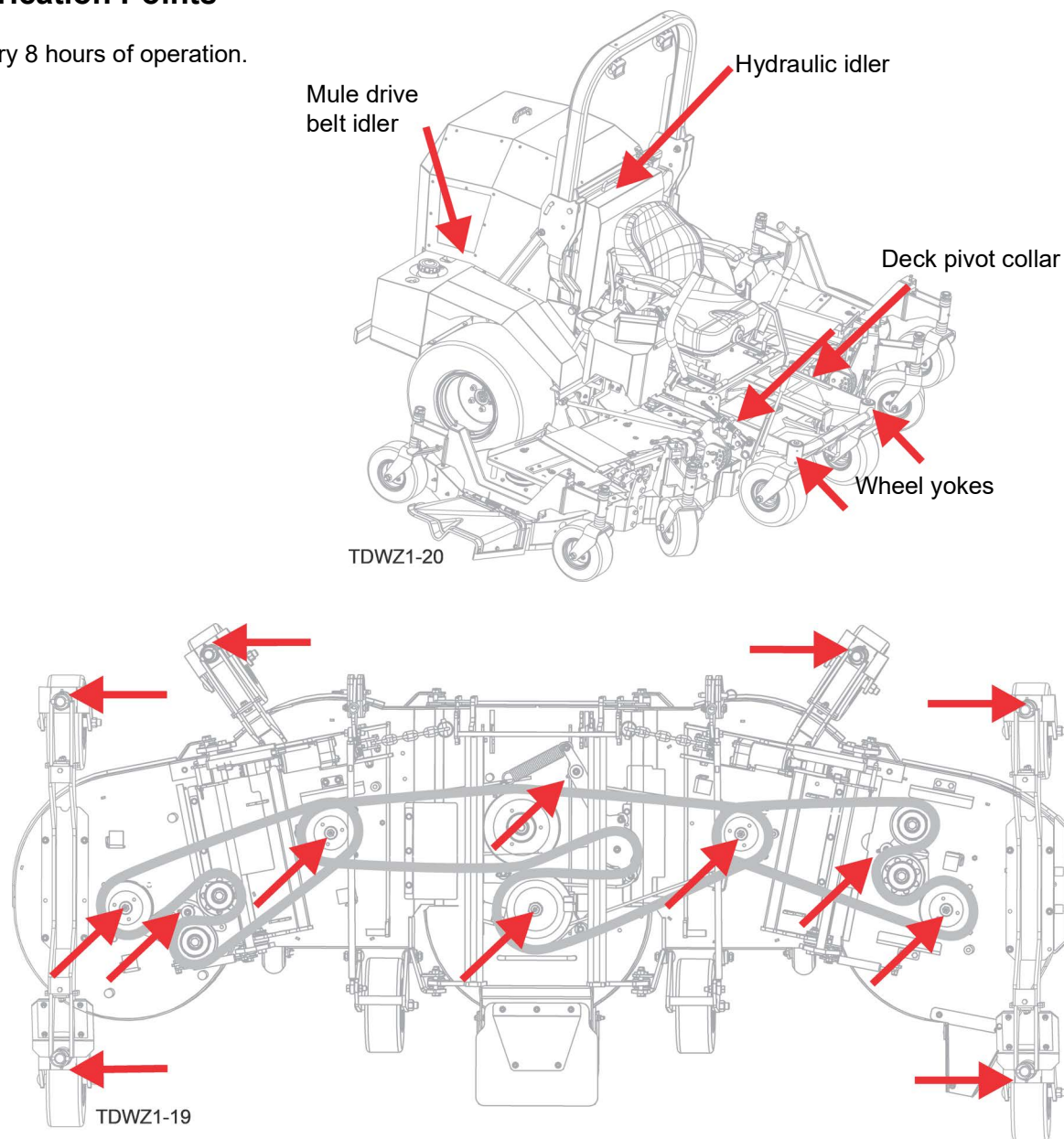
¹. Refer to the Engine Operator's Manual accompanying this manual.

5.14 Maintenance Schedule

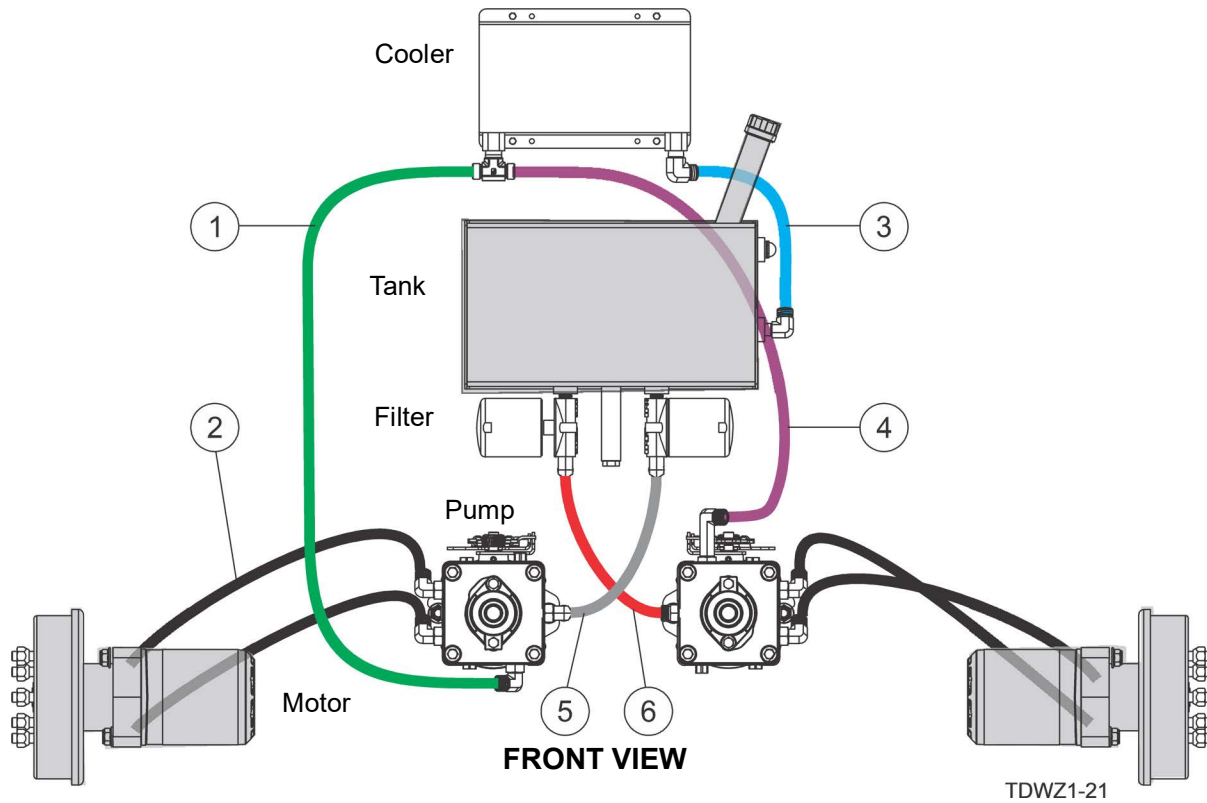
	8 Hours	First 25 hours	First 50 hours	100 hours	200 hours	400 hours	500 hours	Annually	Bi-Annually
Complete the <i>Pre-operation Equipment Checklist</i>	X	X	X	X	X	X	X	X	X
Inspect filter elements	X	X	X	X	X	X	X	X	X
Grease all zerks	X	X	X	X	X	X	X	X	X
Inspect all spindle grease seals under each deck	X	X	X	X	X	X	X	X	X
Lubricate all joints and moving parts that are not equipped with grease zerks	X	X	X	X	X	X	X	X	X
Verify that hardware is functional, securely fastened, and in good condition	X	X	X	X	X	X	X	X	X
Verify proper installation, operation, and flow of grass chute	X	X	X	X	X	X	X	X	X
Inspect entire Lastec Mower for loose or entangled parts, debris, obstructions, neglected tools, or other hazards	X	X	X	X	X	X	X	X	X
Change Hydraulic oil and filter		X				X		X	
Change engine oil and filter		X				X		X	
Inspect engine fuel lines and clamps				X		X		X	
Grease a blade spindle bearing housings				X		X		X	
Inspect all bushings				X		X		X	
Inspect alternator and fan belts					X			X	
Replace fuel filter cartridge						X		X	
Inspect and repack wheel bearings							X	X	
Flush fuel tank of debris							X	X	
Check engine valve clearance							X	X	
Check head mounting bolt torque (while performing valve check)							X	X	
Rotate tires								X	
Replace air cleaner filter elements								X	
Replace engine fuel lines and clamps									X
Replace radiator hoses and clamps									X
Replace battery									X

5.15 Lubrication Points

Lubricate every 8 hours of operation.

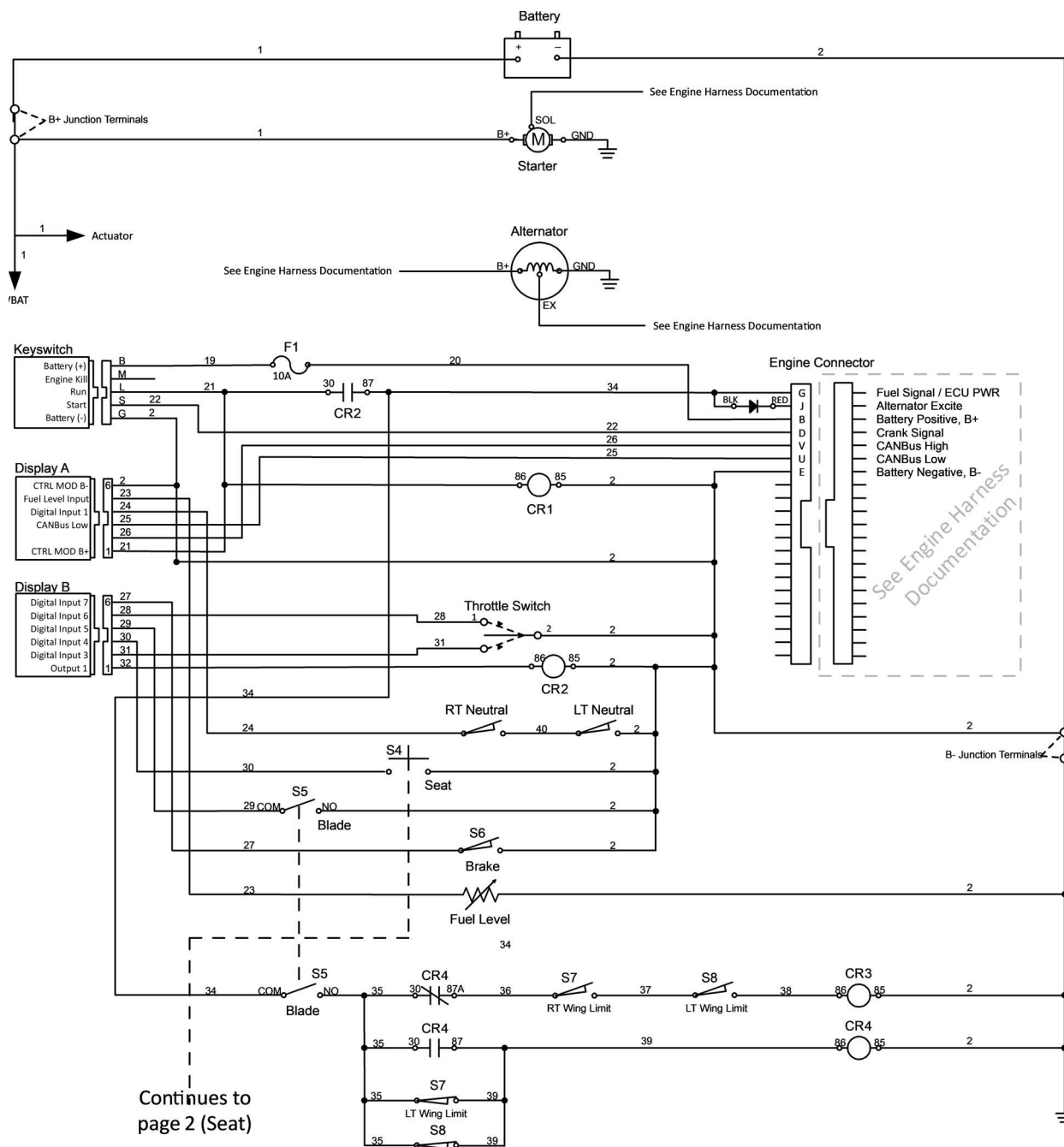


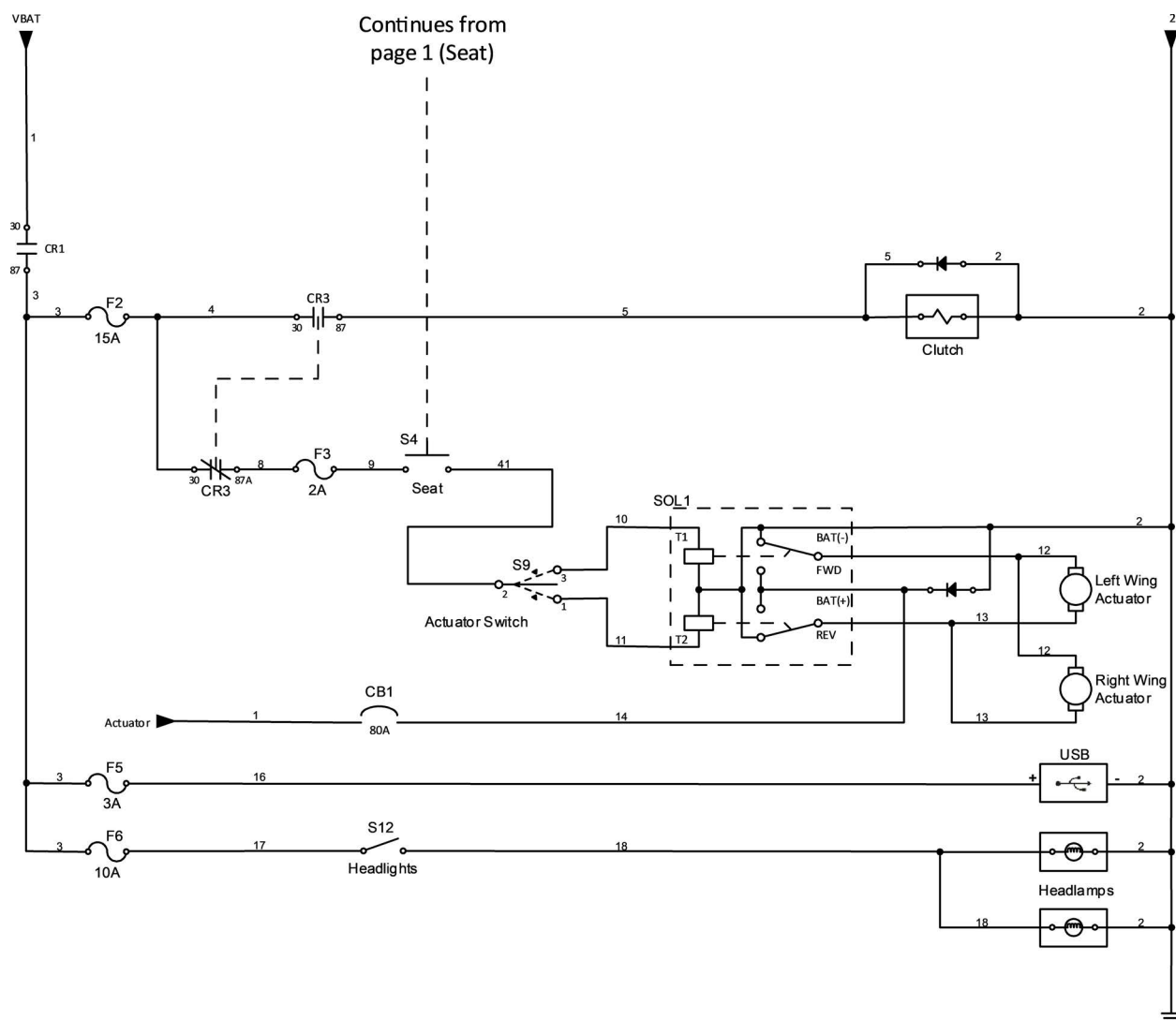
5.16 Hydraulic Hoses



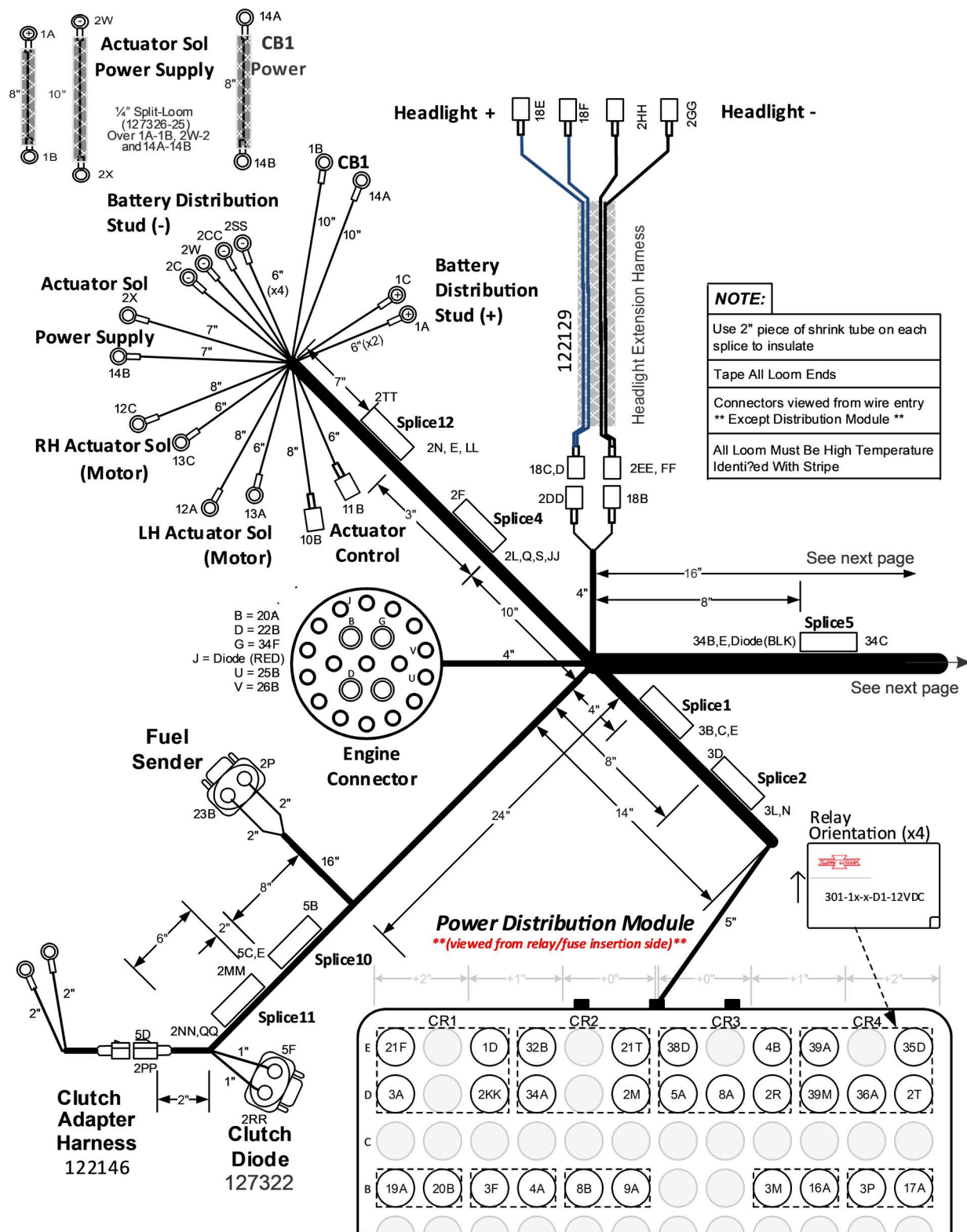
REF	PART #	DESCRIPTION	COMMENTS	QTY
1	106133	Hose Assy, 1/2LPx20-1/2In ORFS 8 45-45	<i>Color coded for illustration only</i>	1
2	105986	Hose Assy, 1/2HPx32in ORFS 8 ST		4
3	106129	Hose Assy, 1/2LPx10-1/2In ORFS 8 ST-ST		1
4	106131	Hose Assy, 1/2LPx24In ORFS 8 ST-45		1
5	106135	Hose Assy, 1/2LPx14-3/8In ORFS 8 ST-45		1
6	106137	Hose Assy, 1/2LPx7-1/2In ORFS 8 ST-ST		1

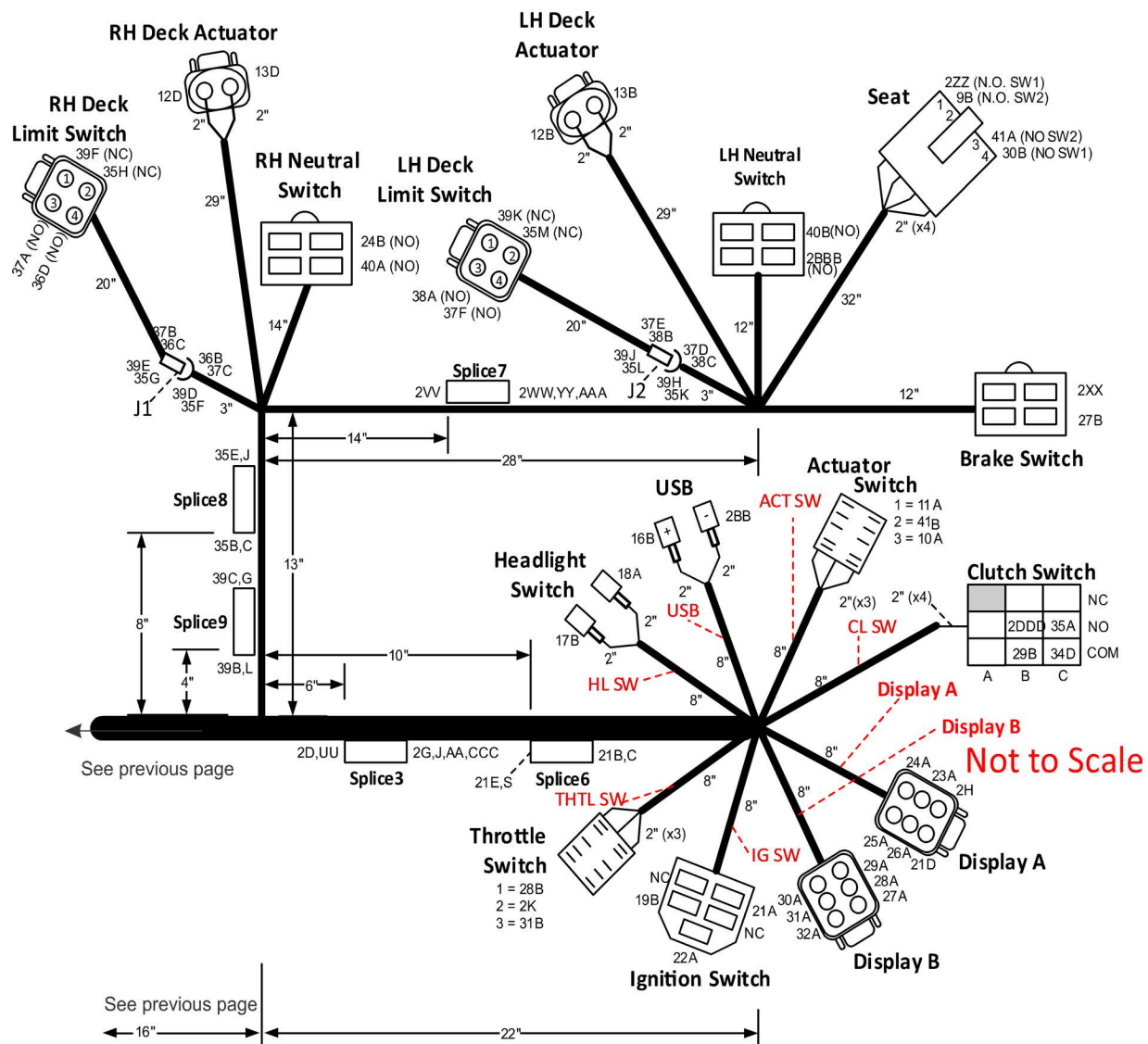
5.17 Electrical Schematic



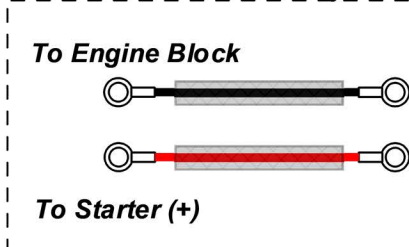


5.18 Wiring Harness

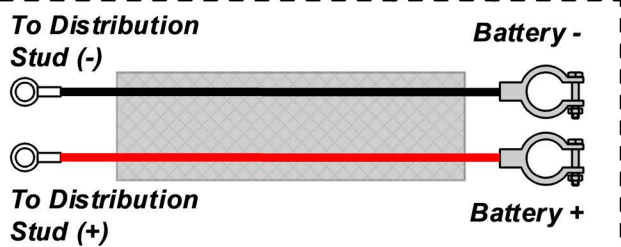




073814 / 073815 Wire Assy



073698 Auxillary Battery Harness



WZ1000/WZ800/WZ600 Chassis Harness 122130 rev. C.02

5.1 Lastec Mower Specifications, WZ1000D4920

PART #

Mowers	Mower Deck Configuration	(5) 25" Articulating Decks	
	Cutting Width	120"	
	Blades	(5) 25"	124068
		(5) 25" Low Lift	124258
		(5) 25" Mulching	124259
	Blade Tip Speed	Max 18,500 FPM	
	Mower Deck Height Range	1" to 4-1/2"	
	Paint	Orange 12 oz. spray	017775
		Black 12 oz. spray	042002
		Gray 12 oz. spray	110589
	Gross Weight	3500 pounds (1590 kg)	
	Front Wheel Assemblies	13x6.5x6 Semi Solid	073098
	Drive Wheel Assembly	26-12x12	122092
	Rim alone	12x10-1/2 HD Center 4-1/2 BC SYM	122091
	Tire alone	26-12x12 K505 6 Ply	059928
	Gage Wheels	9" x 3.5" Solid	056600
	Clutch	Clutch, Warner GT-300	122022
	Main Drive Belt	Belt, C142 Mule Drive	072698
	Deck Drive Belts, Center	Belt, 72" Deck Drive	048272
	Wing Deck, Right	Belt, Insta-Power 85890	P706
	Wing Deck, Left	Belt, Insta-Power 85950	063879
	Maximum Forward Speed	Variable up to 10 MPH (16 km/h)	
Transmission	Hydraulic Pump, Left	PW Series Left Hydro	105991
	Hydraulic Pump, Right	PW Series Right Hydro	105992
	Hydraulic Motors Left ¹	Motor, Hydraulic MB29	018741
	Hydraulic Motors Right	Motor, Hydraulic MB29	018741
	Hydraulic Fluid ²	Lastec Hydro Oil	040642
	Hydraulic Fluid Filter	25 Micron, & GPM Full-flow, 3/8" NPT	P620
	Hydraulic Fluid Capacity	5 quarts	
	Hydraulic Pump Drive Belt	Belt, A-Section Custom	122080

¹ Left and Right hydraulic wheel motors are the same unit -- direction is controlled through orientation. See **Hydraulic System Diagram** following this chart.

² Lastec hydraulic fluid is equivalent to Shell Oil TTF-SB and Mobil One Synthetic 15w50

Engine	Model	Engine, 49Hp Kubota D1803CRTE-1-A-DPF	105402
	Bore and Stroke	87.0mm x 102.4mm	
	Total Displacement	1.83L/ 111.4 cu. in.	
	Power	49.6 HP	
	High / Low Idle Speed	2700 RPM / 1500 RPM	
	Compression Ratio	18:1	
	Dry Weight	432 lbs	
	Oil	API Service Class SC or SH, SAE 10W-30	
	Oil Capacity w/Filter	Approx. 7.4 US qt (7.0L)	
	Oil Filter	Filter	122204
	Fuel	Diesel Fuel No.2-D (ASTM D975)	
	Fuel Capacity	13.5 Ga (51L)	
	Fuel Filter	Filter, Fuel Element Replacement	122208
	Air Filter	Element, Air Cleaner Inner	122219
	Air Filter	Element, Air Cleaner Outer	122220
	Battery	Battery, Group 24 w/ Handle	106065
	Coolant Capacity	4.0L / 1.06 Gal	
	Fan Belt	Belt, Fan-Kubota	122299