Instruction Manual

Wright Manufacturing

4600X Wedgewood Blvd
Frederick, Md 21703

Wright ZTO serial # 59542 and higher

WARNING: READ THIS MANUAL BEFORE USING

For your safety and for proper operation and maintenance read carefully and keep readily available for future reference.

06/2012

Foreword

Welcome to the progressive group of mowing professionals who use Wright mowers. We are focused on giving you advanced engineering and quality construction in each mower we build.

This manual explains the features and promotes safer use of the mower. Please read it in its entirety and follow the instructions carefully so that you can have many years of safe and productive operation with your Wright product.

For service, remember that your Wright dealer knows your mower best and is interested in your satisfaction. Your dealer can provide you with quality maintenance and other assistance that you may need.

Please provide this manual to anyone who may operate the mower for them to study before operation. Additionally, make the manual and service documents available to anyone to whom you may sell the mower in the future. It is important that the next owner receive this information also.

As Wright Manufacturing, Inc. is constantly seeking ways to improve its products, the mower you have may differ slightly from the information and specifications in this manual. Wright reserves the option to make changes at any time without notice, in the process of continually improving our products.

Wright Manufacturing, Inc.

SAFETY ALERT

This is the safety alert symbol. It is used throughout this manual and on the mower's safety labels to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death. Read these instructions carefully. It is essential that you read the instructions and safety precautions before you attempt to work on or use this unit.

WARNING

This symbol with the "WARNING" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

This symbol with the word "CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WRIGHT MOWER USERS & OWNERS: READ THIS MANUAL BEFORE USING PLEASE BE CAREFUL!

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PRE-DELIVERY SERVICE OF MOWER BY DEALER

WARNING

Before proceeding with the Pre-Delivery Service of your mower, please read the safety instructions manual in its entirety. Only your authorized Wright dealer should perform the Pre-Delivery Service of the mower.

The Wright ZTO is shipped completely assembled and has been adjusted and tested at the factory. However, due to the jostling of the shipping process and the delivery time lapse, the following items need to be repeated again before starting the mower. After you have uncrated the mower, raise and lock the ROP's to the upright position. Follow these procedures in the order indicated:

□ Inspect the mower for any damage, unusual conditions or missing parts.

□ Inspect the mower for all of its decals, especially the warning decals. There should be one blade warning decal on each side of the deck, the "shield missing" decal under the blade belt cover, and the dash decal.

□ Check service, parts and recall bulletins to ensure unit does not need any updates.

□ Check (and fill if necessary) engine oil level according to the engine manufacturer's recommendation.

□ Check hydraulic expansion tanks oil levels. Use motor oil: 20W-50 (see Hydro Check/Fill section of this manual).

□ Check rear tire pressure – 18 – 22 psi. is recommended. Use the higher pressures for heavier operators. Front Casters are equipped with non-pneumatic tires and do not require any air. Lowering tire pressure will affect deck pitch. Always check pitch any time tire pressure is set below recommended pressures.

□ Lubricate all appropriate moving parts (see the Lubrication section of this manual).

□ Check the battery to see that the cables are tight and connected properly. The battery is 12 volts and is a maintenance-free battery. Only charge the battery if it will not start the mower properly.

□ Check the "Quick Cut Height" deck adjustment system for proper operation.

□ Add regular unleaded gasoline to fuel tank. (use a minimum of 87 octane gasoline) *(You may use gasoline containing up to 10% ethanol and gasoline containing up to 5% of methanol.)*

□ Check brake safety interlock.
- □ Put the control handles in the"Drive" (handles in) position, this releases the internal parking brake. Try starting the engine. (Engine should not start. If engine starts, service the parking brake locking system)
- □ Apply parking brake by moving the control handles to the "Park/Brake" (Handles out) position.

□ Start the engine according to the engine manufacturer's recommendation. Let the engine run at low - mid RPM for several minutes to ensure the engine oil reaches all of the engine parts and gets the hydraulic fluid circulating through the transaxles, etc.
- □ Release the parking brake by moving the control handles to the drive position. Next, move the hand control levers, one at a time, to make the wheels move in forward and backward rotation.

□ Before testing the blade clutch/brake operation, make sure the area is clear and there is nothing vulnerable to possible thrown objects from under the mower. No one should be near the mower deck or in its line of discharge at this or at any time. The discharge chute deflector should be in the down position.

□ Move the engine throttle control to ¾ RPM speed setting.

□ Move the control handles to the "Inward" operational position.

 Turn on the blade clutch switch. Run blades for approximately one minute. Next, engage and disengage the blades a few times about 10 seconds apart. If the blades do not start and stop in a few seconds each time, service the blade brake system.

 With the blades on, disengage the OPC switch to test the Operator Presence Control switch (OPC). A time delay has been added to the OPC system. The engine should die and the blades should stop with-in 4-7 seconds after leaving the seated position. If not, service the OPC system.

 Disengage the blades.

 Drive the mower around on a level parking lot. Check that the mower drives in a straight line when both hand controls are at the full speed position. (If not, refer to How to Perform The Tracking Adjustment section of this manual) (The control handles may not line up perfectly)

- As you drive the mower, listen for any unusual noises and test for irregular operation and adjust or service as necessary.

 Go over the safety information and operating procedures in this manual with the customer. Instruct each customer in proper operation and observe the customer during their initial operation on a level parking lot. Repeat until the customer is familiar and comfortable with the basic operation and use of the mower.

- **Dealer:**
  - **Register the mower online within 14 days from the date of retail purchase. (*If unable to use the online registration process, contact your Distributor to register for you*)**
  - **Registering the product indicates you have successfully completed the pre-delivery service checklist.**
  - **The limited warranty is considered invalid unless the unit is registered and the above steps are taken.**
  - **Remember, the purchaser is both your customer and our customer and his/her satisfaction is very important. Thank you for supporting our products.**

The mower is now ready for delivery to your customer

1 Introduction

This mower is built to the highest standards in the industry. However, carelessness or operator error may result in serious bodily injury or death. Accident and hazard prevention are dependent upon the awareness, concern, wisdom, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment. Make sure every operator is properly trained and thoroughly familiar with all of the information in this manual before operating the equipment.

This machine is constructed only for mowing grass on lawns **without** obstacles such as stones, tree stumps etc. The machine can also be used for other tasks when equipped with special accessory attachments; Grass Gobbler, Rear Bagging System and JRCO attachments. All other types of uses are incorrect. The manufacture's directions concerning operation, maintenance, and repairs must be carefully followed.

Lawn mowers and all power equipment can be potentially dangerous if used improperly. Safety requires good judgment, careful use in accordance with these instructions and common sense.

The machine must only be operated, maintained and repaired by persons familiar with the machine's special characteristics and who are also knowledgeable about the safety instructions. Use only approved repair parts to maintain.

Accident prevention regulations, other general safety regulations, occupational safety rules, and traffic regulations must be followed without fail.

Unauthorized modifications to the design of the machine will absolve the manufacturer from liability for any resulting personal injury or property damage.

This machine is not intended for use in an extreme environments, as a tow vehicle, on steep slopes or in an enclosed area without good ventilation.

1.1 Technical Data

Weight of overall machine	48" (122 cm) = 1015 lbs (460 kg) 52" (132 cm) = 1025 lbs (465 kg) 61" (155 cm) = 1060 lbs (481 kg)
Machine dimensions *Chute Deflector Down	48" (122 cm) = 78" (198 cm) L x 49" *59" (124 cm *150 cm) W 52" (132 cm) = 78" (198 cm) L x 53" *63" (135 cm *160 cm) W 61" (155 cm) = 78" (198 cm) L x 62" *72" (157 cm *183 cm) W
Speeds	Fwd. 10.5 mph (17 km h), Rev. 4 mph (6 km h)
Power supply	12V DC

1.2 General Safety Rules

The Wright ZTO is designed with your safety in mind. It has the following safety systems with which you should become familiar:

- The warning decals on the mower including the parking brake and general warning decal
- **DO NOT** disable any of the safety features
- The blade switch must be "off" before starting the engine
- You must be seated with the control levers in the "Park/Brake" position to start engine. Park/ Brake refers to the control handles in the outward position.
- You must be seated to engage the blades
- If you lift off the seat while the blades are running the engine will stop and the blades will brake in seconds
- Spring loaded chute deflector helps reduce trajectory of thrown objects

- Belt/pulley covers on cutter deck
- Low center-of-gravity (CG) to improve stability on hills
- Rollover Protection System (ROP's) must be pinned securely in upright position and used with seat belt.

1.2.1 Do's and Don'ts

Do's	Don'ts
Read the operators manual before attempting to operate this machine	Don't disable safety switches
Use all PPE's, eye protection, ear protection and safety shoes	Don't operate when lightening is seen
Ensure all safety switches are operational	Don't lift with a forklift
Keep all shields and covers in place	Don't change RPM's outside of operating limits
Clean flammable material from machine	Don't remove the ROP's
Inspect fuel system and fuel lines for cracks, leaks and dryrott	Don't tow or push
Inspect area to be mowed for hazards	Don't operate on slopes when wet
Only operate in daylight	Don't leave a running machine unattended
Mow safe distances away from drop-offs and other hazards	Don't change the engines governor setting or overspeed the engine
Maintain a safe distance from people and pets	Don't operate the machine wearing sandals, sneakers or any loose fitting clothes
Follow daily and weekly maintenance checklists	Don't back up without being aware of what is behind the machine
Remain seated while operating	Don't suddenly push in forward direction while machine is in a rearward motion
Observe traffic laws while driving machine from one location to another	Don't operate a poorly maintain machine
Thoroughly inspect the machine after striking a foreign object	Don't allow persons to operate this machine without reading the operator manuals
Turn off blades when not mowing	Don't put hands or feet under any part of the machine while it is running
Slow down before turning	Don't ever carry passengers
Stop engine before removing Grass Gobbler or cleaning under deck	Don't discharge material towards anyone
Use caution when loading or unloading the machine onto a truck or trailer	Don't operate the machine if you are sick, fatigued or under the influence of alcohol or drugs

1.2.2 Warnings!

These warnings are provided to improve safety and should be carefully read before using or maintaining the machine.

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1.3 Important Information

It is vital that these instructions are available to machine users. It is also important to retain with the machine if the machine is sold or transferred to another user.

1.4 Owner/User Notice

WARNING

The owner's/user's obligation is to instruct themselves and all potential users in the safe operation of this equipment and be sure they read and follow the instructions in this safety manual and other material provided by Wright Manufacturing, Inc. before using or allowing others to operate the equipment. Do not operate this unit unless you carefully read, understand and follow the assembly, installation, and safety instructions contained in this manual and the warning decals provided on the unit. Do not allow other persons to use this unit unless you make sure they carefully read, understand and follow these instructions. Never allow children to operate or play on the unit.

1.5 Safety for Operation

The ZTO should only be used by fully trained operators to prevent the risk of injury to themselves or other personnel. The owner's/user's obligation is to instruct themselves and all potential users in the safe operation of this equipment and be sure they read and follow the instructions in this safety manual and other material provided by Wright Manufacturing, Inc. before using or allowing others to operate the equipment. **DO NOT** operate this unit unless you carefully read, understand and follow the operation and safety instructions contained in this manual and the warning decals provided on the unit. **DO NOT** allow other persons to use this unit unless you make sure they carefully read, understand and follow these instructions. Never allow children to operate or play on the unit.

1.6 User Qualifications

This product is designed for use by physically fit, experienced, professional commercial mower operators who have a minimum of 160 hours of experience operating twelve horsepower and greater industrial mowers. Operators must be 18 years or older and weigh at least 120 pounds and no more than 350 pounds. They must have read and understood this manual. ***DO NOT*** *allow children to operate the mower. Never allow passengers on the mower.* ***DO NOT*** *allow adults to operate the mower without proper instruction as mentioned above.*

1.7 User Clothing

DO NOT operate the mower while wearing sandals, tennis shoes, sneakers, or shorts. Always wear long non-baggy pants. Wear high-top leather steel-toed work boots with thick, textured tread, soft-rubber soled at all times. Hard or smooth soled shoes are too slippery for a good footing on mower platform. **NEVER** wear loose-fitting clothing or jacket pockets that can get caught on the handlebars or control levers of any mower you drive. Wearing safety glasses, ear protection and safety shoes is advisable and required by some local ordinances and insurance regulations.

1.8 Inspect the Mower Before Each Use

DO NOT use the mower if any parts are not maintained in good operating condition. Examine the moving parts prior to each use. Look for excessive wear, bald or worn tires, cracks in parts, loose or missing bolts, cotter pins, linchpins or "hair" pins or cable yoke pins, control system ball joints and replace before operating the mower. Make sure all safety equipment provided with the mower is in good operating order, including all the warning decals and the required operator-presence device which stops the engine and blades when the seat-operated Operator Presence Control (OPC) switch is released. (To test the OPC, follow instructions in the Operating Instructions section of this manual.) Be sure that all parts of the hand-operated hydraulic control system are tight and secure. This is to reduce the possibility that the mower could have a loss of control during operation and compromise operator safety.

1.9 Regular Mower Safety

Keep your Wright mower in good operating condition, and keep safety devices and shields in place and in working condition. Replace worn tire(s) with less than 3/32" of any tread groove left. Use tires with the tread pattern specified by Wright Mfg., Inc. only. **DO NOT** change the engine governor settings or over-rev the engine contrary to engine manufacturer specifications. Failure to comply can compromise operator safety, shorten equipment life and void your manufacturer's warranty. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition. Check the blade mounting bolts for proper tightness every eight (8) hours of operation. Check the blades for excessive wear and sharpness every four to eight (4-8) hours of operation. Sharpen dull blades. Replace blades when they become excessively worn. The mower **should not be used** after the blades or other part of the mower strikes a foreign object, until conducting a thorough inspection and any damage is repaired. Make sure the chute deflector is always in

place and operating properly. Replace if the deflector becomes worn or ceases to properly deflect the grass in a safe manner. See the instructions in the Recommended Maintenance section of this manual for other items of required maintenance.

1.10 Work Area Conditions and Inspection

Prior to operating the unit, carefully inspect all lawn/ground areas where you plan to use the mower for hidden, hard-to-see objects or uneven ground that may be hidden in the grass. Clear the work area of moveable objects such as wires, rocks, glass, toys, etc. that might be picked up by the mower and dangerously thrown. Remove, if possible, or mark the location of all immovable objects or irregular areas and be sure not to hit them with any part of the mower, its deck or the blades. Obstacles such as holes, abrupt changes in ground contour, tree trunks, stumps or roots, pipes protruding from the ground, paving edges, etc. in the path of operation can abruptly turn or stop the mower. This could possibly throw you into the control levers or even off the mower, causing serious injury or death. The faster you are moving the more potential there is for injury. Mow only in daylight or in good artificial light. Keep away from drop-offs, the edges of ponds, streams, pools, etc. especially at the bottom of slopes. **DO NOT** mow when children or others are nearby. When the Wright mower is in use, never direct the grass discharge toward bystanders, traffic, cars or buildings nor allow anyone within 50 feet of the machine while in operation. Thrown objects can pass through glass windows and some walls of buildings. There is extreme risk of danger from thrown objects or being cut by the blades of the mower. **Never** operate the mower in an enclosed area without good, approved ventilation. Exhaust fumes are dangerous.

1.11 Initial Operating Safety Guidelines

- Read and understand the warnings on the general warning decal on the mower.
- Regularly check and test the safety devices for correct function.
- Recommended PPE is safety shoes, safety glasses and ear protection.
- Use seat belts with the roll bar in the raised and locked position.
- Keep both feet on the foot platform at all times.
- Know the controls and how to stop quickly.
- Before attempting to start the engine, follow all starting instructions below and in the engine operator's manual.
- Look behind before backing up.
- Before leaving the operator's seat, even momentarily, turn off the blade clutch engagement switch and move the control handles to the outward "Park/Brake position. Keep others from coming near the mower. Get back on the mower as soon as possible.
- When leaving the Wright mower unattended, turn off the blade clutch engagement switch, move the control handles to the Park/Brake position, stop the engine and remove the key. **Never** leave the machine unattended on a slope in case someone moves the control handles to the inward (Brake Off) position. This could create a rollover hazard.
- When transporting, driving onto transport vehicles, into buildings, across parking lots or otherwise not mowing grass, raise deck and lock in the transport position and turn off the blade clutch engagement switch to reduce risk of thrown objects and rotating blade hazard. After coming to a stop, move the controls to the Park/Brake position, stop the engine and remove the key.
- Before performing any maintenance or repair service, disengage power to blades, stop the engine, remove ignition key and spark plug wire from spark plug(s).
- All operators of this mower should exercise caution when driving this mower at high speeds. Sudden acceleration or deceleration may cause serious injury.
- **DO NOT** allow inexperienced persons to operate the mower until they have read and understood these safety instructions. Operate the mower at slower speeds while becoming familiar with it.

- The grass discharge chute deflector must be installed at all times and in the down position except that it may be raised when cleaning out the deck, or a grass catcher is installed or a mulch kit and block-off plate is properly installed.
- If the mower discharges grass clogs, turn off the blade clutch switch, move the control levers to the Park/Brake position, stop the engine and remove the key before removing obstruction(s).
- Keep all shields and covers in place, namely, all blade and belt covers, engine shields, and grass discharge chute deflector.
- Keep hands, feet and clothing away from rotating parts, especially the rear wheels, blades, engine flywheel, belts and pulleys.
- **DO NOT** touch engine, muffler or hydraulic transaxle system while engine is running or soon after it is stopped. These areas can be so hot as to cause severe burns.
- ***Clean grass, leaves and lubricant spills from surfaces after use to prevent fire hazard.***
- Be alert for traffic when crossing roads or operating near roadways.
- Before climbing curbs, crossing gravel drives, sidewalks or roads, turn off the blades and wait for them to stop, and then place deck into transport position.
- Inspect/Deploy/Packout ROP's prior to operation. Additional operational safety guidelines with regards to the ROP's may also be found in this manual.

1.12 Safety for Maintenance

- Repairs carried out by untrained or unauthorized personnel may result in personal injury or serious malfunction of the ZTO.
- If Guarding is removed for inspection and component replacement, ensure the control levers are in the Park/Brake position and the key is removed prior to inspecting or making repairs and that the guarding is replaced before operation.

1.13 Operation in Forward Direction

Operate the mower slowly until you become familiar with how the mower operates. Do not operate the mower faster than conditions allow. For example, hills, wet or bumpy ground, dim light or high grass are all conditions requiring slower speeds. Never operate the mower at the highest speed unless you are on level, wide, open areas of clearly visible ground or transporting on paved areas. Speeding with any mower is dangerous, and so is traveling faster than conditions should permit on this mower. Sudden stops from excessive speed or falling off the mower may cause serious injury or death.

1.14 Operation in Reverse

Keep both feet on the foot platform at all times. Look behind you before backing to prevent injuring yourself or anyone behind you. Operate the mower very slowly, inching it backward until you become familiar with how the mower operates. Always operate slowly if in an awkward location or position. The control system is equipped with a return to neutral from reverse spring. This is to aid the operator in returning the mower to neutral after a reverse maneuver.

1.15 Zero-Radius Turn Operation

During zero-radius turns (when one mower wheel rotates backwards while the other rotates forward) drive extra slowly to reduce the possibility of losing traction, or control, or becoming dizzy. This will help prevent you from being thrown off the mower or into the control levers. Be aware that if you do a turn on a slope you may go through all of the orientations to a slope mentioned below and must handle the mower accordingly.

1.16 Operation on Slopes

WARNING

DO NOT operate on steep slopes. **DO NOT** operate the mower on slopes steeper than you can feel secure about the traction of the tires and the stability of the mower. **DO NOT** operate the mower on slopes at all when the grass is wet. **DO NOT** mow near drop-offs or near water. Keep the roll bar in the raised and locked position and use seat belt. There is a danger of suddenly sliding sideways or down the hill. When operating on a slope, travel across the grade whenever possible, not in an up or down pattern. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes. The operator is responsible for safe operation on slopes.

When pointing up a slope, your mower has the most weight on the drive wheels and therefore the most traction at the tires. However, this is the angle that it has the most tendency to tip back ("pop a wheelie.") This is the preferred angle for mowing small areas of steeper slopes.

Recommendations for this angle:

- Lean as far forward in the seat as possible to shift your weight to the front of the mower.
- Accelerate gently. **DO NOT** accelerate quickly to avoid "popping a wheelie".
- If backing down the hill, **DO NOT** stop suddenly but slow down gradually.

When pointing down a slope, your mower has the least weight on the rear drive wheels and therefore the least traction at the tires. This is the angle that the mower has the most tendency to slide. However, this is the angle that it has the least tendency to tip back. Avoid this angle, as it has the least advantage for your mower.

Recommendations for this angle:

- Sit back as far as you can on the seat. This adds more of your body weight to the drive wheels for more traction.
- **DO NOT** change speed suddenly to minimize the tendency of going into a slide. Accelerate and decelerate gently. If you ever go into an uncontrolled slide while pointing down a slope, control the mower gently and stay off slopes that tend to make the wheels slide.

When crossing a slope sideways, your mower has the average amount of weight on the drive wheels versus the front wheels, similar to level ground. However, this angle leaves the least weight on the higher side drive wheel, tending to make it slip. This is the preferred angle for mowing large areas of gentle slopes.

Recommendations for this angle:

- Sit back, as far as you can on the seat and angle yourself to the higher side. This adds weight to the rear drive wheels and will allow you to mow more quickly across the slope without sliding. Remember it is recommended that operators weigh at least 120 pounds and not more than 350 pounds. These are general guidelines only. The mower function and comfort will vary depending on mowing environment, operator driving style and preference.
- To reduce the chances of "popping-a-wheelie", do not accelerate quickly.

Note: Excessively worn tire tread is dangerous. Replace tire(s) with less than 3/32" of any tread groove left. Use tires with the tread pattern recommended by Wright Mfg., Inc. only. Keep the tire pressure in the drive tires between 18 and 22 psi. Higher pressures will cause the tires to have less traction which may prevent safe operation. The front caster tires do not require air.

1.17 Fuel Safety

WARNING

Handle gasoline with care – it is highly flammable. Do not smoke while handling gasoline. Use an approved gasoline container. Never remove the fuel cap or add gasoline to a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gas. NEVER store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

1.18 Hydraulic Safety  **WARNING**

The hydraulic system on the Wright ZTO is not equipped with high pressure hydraulic hoses or any external high pressure hydraulic exposure. However, always use caution when servicing any hydraulic systems.

1.19 Using a Spark Arrester

The engine in this machine is not equipped with a spark arrester muffler. It is in violation of California Public Resources Code Section 4442 to use or operate the engine on or near any forest-covered, brush-covered, or grass covered land unless the exhaust system is equipped with a spark arrester meeting any applicable local or state laws. Other states or federal area may have similar laws.

1.20 Replacement Parts **WARNING**

Use of parts other than specified parts supplied by Wright Manufacturing, Inc. may compromise the safe use of the mower, are not recommended and their use could void the warranty. Always check with your Dealer or the Wright Mfg website for the latest Illustrated Parts List for your equipment.

WARNING

CALIFORNIA
Proposition 65 Warning

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

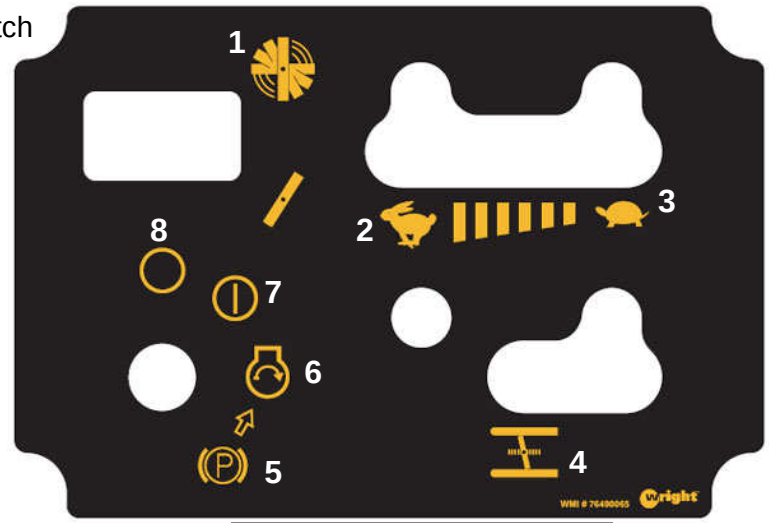
Wright is fully concerned with your safety. Please read the above again and again until you fully understand the methods to promote the safest operation possible.

REMEMBER – YOUR MOWER CAN BE ONLY AS SAFE AS THE OPERATOR.
FAILURE TO FOLLOW SAFE OPERATING PRACTICES MAY RESULT IN SERIOUS INJURY OR DEATH.

2 Warning, Safety and Instructional Decals

- Specific safety warning decals are located on the equipment near immediate areas of potential hazards.
- Keep all safety signs legible. Remove all grease, dirt and debris from safety signs and instructional decals.
- Replace worn, damaged or missing safety decals.
- If an attachment or accessory has been installed, make sure current safety decals are visible.

1 - Blade engage/disengage switch
2 - Fast / Full throttle
3 - Slow / Idle throttle
4 - Choke
5 – Apply Parking Brake to Start
6 - Ignition switch, Start
7 – Ignition switch, Run
8 - Ignition, off



Dash Panel, 76490065

Shield Missing 76490001

Parking Brake, 76490114

Blade Hazard 76460001

General Safety, 76490115

76490050

3 Specifications

Engine

- See your Engine's Owner's Manual
- RPM: Full Speed:
- Kawasaki: 3600 +/- 50 RPM (no load) / Idle: 1550 RPM
- Briggs and Stratton: 3600 +/- 50 RPM (no load) / Idle: 1550 RPM

Electrical System

- Charging System: Internal Stator Coil
- Battery Type: Maintenance Free
- Battery Voltage: 12 volts
- Fuses: Two, 20 amp blade type

Fuel System

- Capacity: 14.5 Gal. (54.9 L)
- Type of Fuel: Unleaded regular gasoline, minimum 85 octane. Do not use gasoline containing more than 10% ethanol. Do not mix oil with gasoline.
- Fuel Filter: In line,
- Fuel Shut Off: ¼ turn increments (Off, right tank, left tank)
- Fuel gauge in left side fuel tank

Safety Interlock System

- PTO switch must be disengaged, control handles in the OUT position to start the engine.
- Operator MUST be in the seat to engage the PTO, brake is off when the control levers are moved to the IN position or the engine will stop.

Drive System

- Two Hydro Gear Hydrostatic Transaxles ZT3400.

Hydro Oil System

- Hydro Oil Type: Motor oil: 20W-50
- Hydro Filter: Spin-on, WMI P/N, 39410007
- Total Capacity: 2.4 qts / 2.9 liter, does not include expansion tank.

ZTO SPECS	
48" (122 cm) ZTO	
Width (Deflector Down)	49" (59") / 124 cm (150 cm)
Length	78" (198 cm)
Weight	1015 lbs (460 kg)
52" (132 cm) ZTO	
Width (Deflector Down)	53" (63") / 135 cm (160 cm)
Length	78" (198 cm)
Weight	1025 lbs (465 kg)
61" (155 cm) ZTO	
Width (Deflector Down)	62" (72") / 157 cm (183 cm)
Length	78" (198 cm)
Weight	1060 lbs (481 kg)

ZTO Torque Specifications		
Application	**Thread Locker**	**Torque Range**
Clutch to engine shaft	Loctite 2760	50-55 ft lbs / 68-75 Nm
Wheel lug nuts	N/A	80-90 ft lbs / 108-122 Nm
Split hubs (Spindle & Drive) (Gr 8)	N/A	13-17 ft lbs / 18-23 Nm
Blade Bolts (lubricate with anti-seize)	N/A	70-80 ft lbs / 95-108 Nm
Engine mounting bolts	Loctite 2760	33-35 ft lbs / 45-47 Nm
ROP's Mounting Bolts	N/A	80-90 ft lbs / 108-122 Nm

ZTO Transaxle Torque Specifications		
Application	**Thread Locker**	**Torque Range (In-lbs)**
Oil Filter	N/A	110-130 In lbs / 12.4-14.7 Nm
Oil level port plug	N/A	180-240 In lbs / 20.3-27.1 Nm
Cooling Fan Nut	N/A	540-660 In lbs / 61.0-74.5 Nm

4 Machine Description & Overview

The Wright ZTO is meant to solely cut, bag or mulch grass. The use for any other purpose is not recommended. Always keep the Roll Over Protection in the full up position and always wear your seatbelt.

1 – Flexible Chute Deflector	2 – Rear Drive Tire	3 – Right Fuel Tank w/ Cap
4 – Battery Box	5 - Roll Bar	6 – Seat w/ Seat Belt
7 – Left Fuel Tank w/ Cap	8 – Motion control levers	9 – Foot Platform
10 – Front Caster Tires	11 – Anti Scalp Roller	12 – Deck Lift Lever
13 – Cutter Deck Cover	14 – Aero-Core Cutter Deck	

4.1 Model and Serial Location

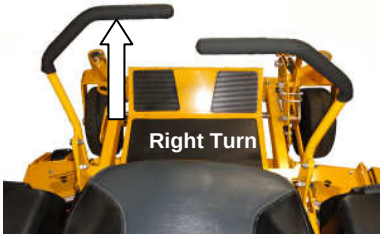
1. The plate is affixed on the right side in the engine compartment.
2. Stated on the plate will be the Model and serial number, these will be needed when ordering parts.

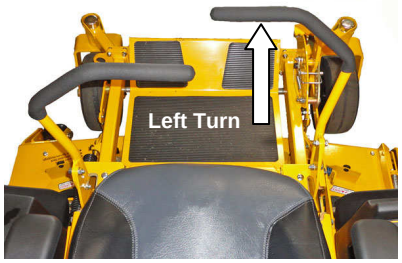
4.2 Operator's Area

1 – Seat, Armrests and Seat Belt
2 – Fuel Cap
3 – Left Fuel Tank w/ Gauge
4 – Control Handles
5 – Foot Platform
6 – Deck Lift Lever and Height Adj.
7 – Control Panel
8 – Right Fuel Tank w/ Control Panel

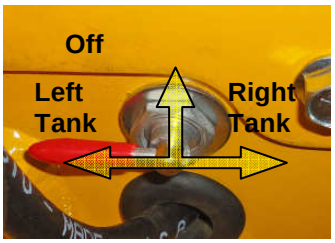
4.3 Steering Control Levers

The ZTO's speed and direction are controlled by using two steering control handles. The handles can be moved forward and backward about a neutral position. Moving the control handle equal distance forward or backward the machine moves in a straight line.





4.4 Fuel System / Shut Off Valve



The fuel shut off valve is located at the left rear behind the seat compartment. The fuel valve should be in the "Off" position at all times when the mower is not in use. Do not fill fuel tanks completely. Fill until level is 1 inch below the bottom of the white fill neck insert. This will allow for the gas to expand and prevent fuel from soaking the vent valve. A fuel gauge is located on the left tank. Use the fuel from the right tank first. When the right tank is empty, switch to the left tank. The fuel gauge will monitor the remaining fuel.

4.5 Seat

The seat is equipped with a seat belt, Flip-up armrests, forward and rearward adjustment.

- Forward and Rearward Adjustment – Located under the right front side of the seat, pull the lever to the side, slide seat forward or backward.

4.6 Digital Hour Meter

The ZTO is equipped with a digital hour meter. Refer to operating/reset instructions below.

The programming specified is:

Default display: Hours
Press once (TMR1): Timer 1, press for 3 sec to reset
Press twice (TMR2): Timer 2, press for 3 sec to reset
Press three times (svc ENG): Will display time remaining until next service point, hold down to reset. The first interval is 8hr, thereafter 100hr. Beginning 5hr before service point the meter will flash "svc ENG, in [remaining hours]" every 5 sec.
Shut off engine: Will display how many times the engine has started.

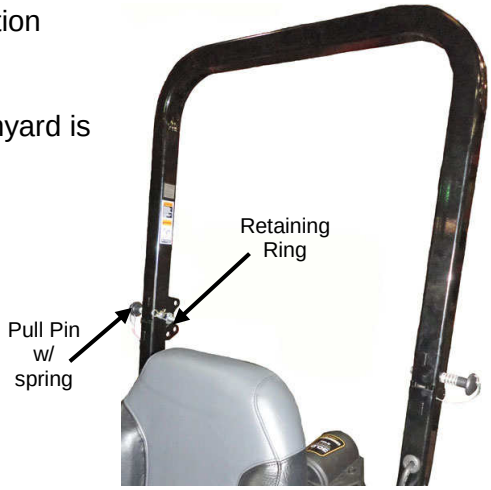
4.7 Deck Lift Lever

The foot operated deck lift is used to raise and lower the deck. Deck is to be in the up position when in transport, go over curbs, loading and unloading on to a truck or trailer. The ZTO has a deck lift assist spring but optional Deck Lift Foot Lever Extension Kits are available thru all Wright Dealers. (P/N 95460011)

4.8 ROP's

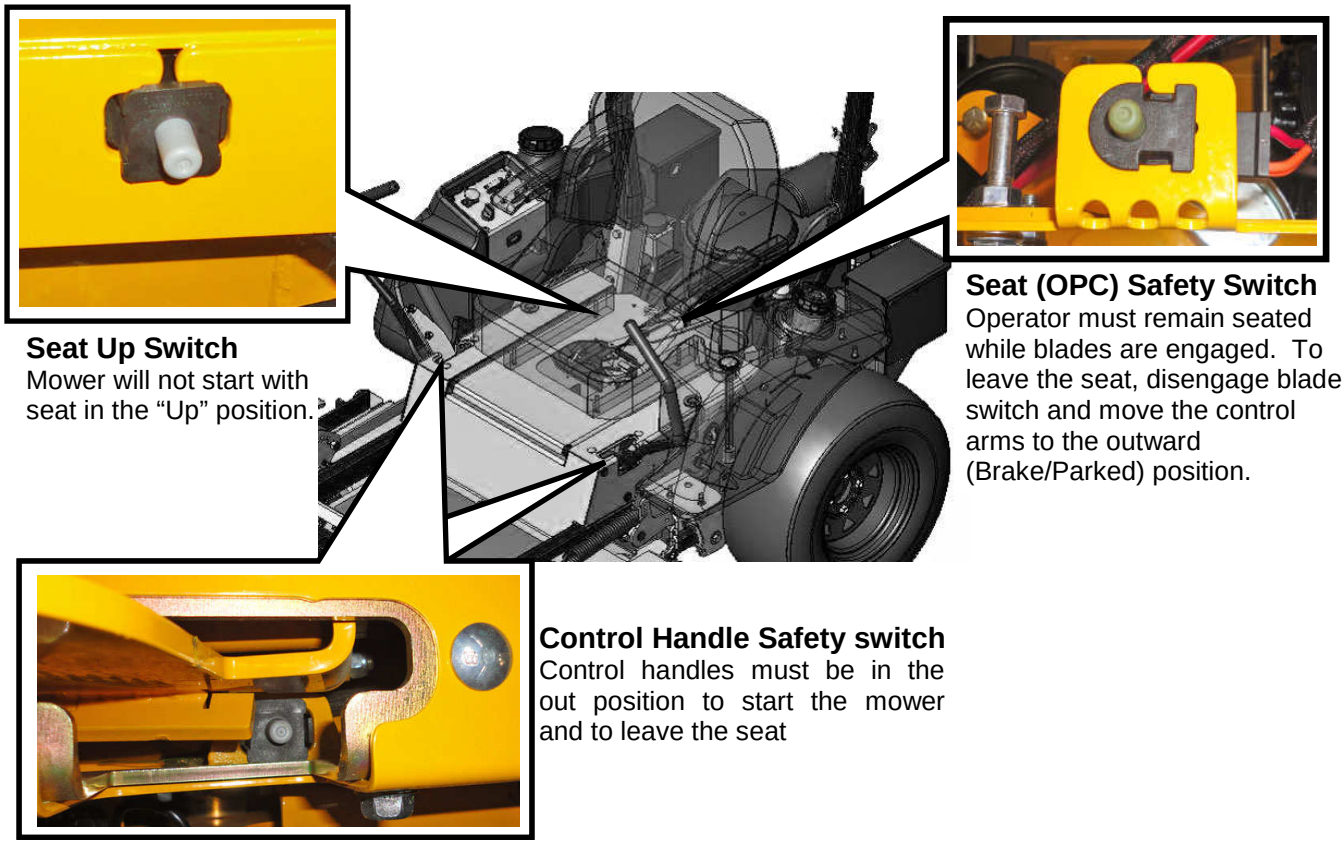
A Roll Over Protection System (ROP's, P/N 98410135) and seat belt is provided with the Wright ZTO. Do not remove the ROP's and the seat belt.

- Inspect ROP's and seat hardware after the first 100 hrs of operation and every 6 months for loose or missing hardware.
- Inspect the seat latch to make sure it is functioning properly.
- Make sure Retaining ring and clevis pin are fully installed and lanyard is in good condition.
- Keep ROP's fully extended.
- Use seat belt



4.9 Safety Switch System

The Wright ZTO is equipped with a safety interlock system. The PTO must be disengaged, an operator in the seat and the control levers in the Out (Brake On) position in order to start the machine.



Seat Up Switch
Mower will not start with seat in the "Up" position.

Seat (OPC) Safety Switch
Operator must remain seated while blades are engaged. To leave the seat, disengage blade switch and move the control arms to the outward (Brake/Parked) position.

Control Handle Safety switch
Control handles must be in the out position to start the mower and to leave the seat

5 OPERATING INSTRUCTIONS

WARNING

If you are not completely familiar with the Safety Instruction Manual read it now before proceeding with the operation of the mower. REMEMBER THERE ARE CERTAIN PRECAUTIONS LISTED IN THIS MANUAL THAT YOU MUST NOW TAKE BEFORE STARTING THE MOWER.

5.1 Inspect Mower Before Each Use

Inspection of Mower: Do not use the mower if any parts are not maintained in good operating condition. Examine all moving parts prior to each use. Look for excessive wear, bald drive tires or worn out front tires (normally smooth), cracks in parts, loose or missing bolts, cotter, linchpin or "hair" pins or cable yoke pins and replace before operating the mower. Make sure all safety equipment provided with the mower is in good operating order, including all warning decals and the operator-presence device which stops the engine and blades when the seat-operated Operator Presence Control (OPC) switch is released. To test the OPC, follow the instructions given later in this manual. Ensure that all parts of the control-lever control system are tight and secure. This is to reduce the possibility that the mower could have a loss of control or safety.

Basic Operation: The following procedures are to guide you through the basic operation of the mower. You should be a qualified mower operator according to the safety section of this manual. If this is your first time, operation should only be done with the assistance of your dealer on a level area. You should go through each step, in the order indicated, every time you start the mower.

5.2 How to start the mower

Before starting the engine

- Make sure the control levers are in the Parked/Brake, outward position
- Turn OFF the blade engaging switch if it is on.
- Turn fuel valve to the Left or Right, depending which tank you choose to use. Note: The fuel valve is located on the left side, rear of the seat frame.

Starting the engine

•Start the engine according to the engine manufacturer's recommendation, see engine manual. Set the throttle control lever near mid throttle. Set the choke lever to full choke. Turn the key to the start position. Do not engage the starter for more than five (5) seconds at a time. This may overheat the starter and the wiring systems. Wait ten (10) seconds between attempts. If the engine does not start after several attempts or stalls frequently, take the mower in for service.

After starting the engine according to the engine manufacturer's recommendation, pull back on the choke control knob to open the choke valve, let the engine run for 3-5 minutes at mid throttle to allow sufficient warm up. Do not over-rev a cold engine.

Unusual noises or irregular operation:

As you drive the mower, listen for any unusual noises and test for irregular operation and adjust or service as necessary.

5.3 How to drive the mower

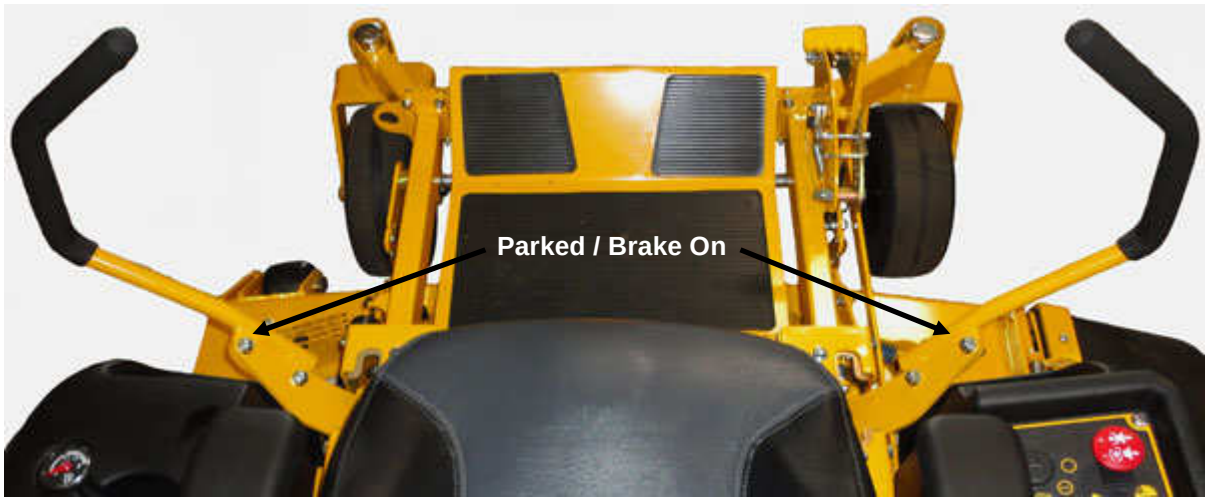
WARNING

While sitting, both feet should be firmly placed on the foot platform. Set the engine speed about a fourth of the way from idle. Release the parking brake by moving the control handles to the "In" position. Now try moving the hand control levers, one at a time, very slightly, forward and backward. Check to see if the wheels move forward and backward according to the position of the levers. With both feet still firmly placed on the foot platform, increase the engine speed to about half of the way from idle speed. The higher engine speed will make the controls much more responsive and the mower much quicker; Use caution if it is your first time. Now

try moving the hand control levers, one at a time, very slightly, forward and backward. Gradually increase your speed until you are well acquainted with the operation of the hand controls and the mower's behavior. After gaining a good feel for how the mower handles, gradually attempt higher engine speeds until familiar with operation at full throttle engine speed.

5.4 How to Stop and Park the Mower

Come to a complete stop. If the blades are on, turn them off using the blade switch on the instrument panel. *Make sure the control levers are in the outward position, parked/brake on.* Reduce the engine speed to idle and let run for 3-5 minutes, shut off the ignition switch to stop the engine and then remove the key from the ignition switch. The mower is now parked. Do not leave mower unattended on a sloped surface.



5.5 Driving the Mower Over a Curb

WARNING

To climb a curb, first see the Safety Instructions section of this manual, especially the parts on:

- Initial Operating Safety Guidelines
- Operation In Reverse
- Operation In Forward Direction

Next, raise the mower deck into the locked transport position. This is the highest position for the mower deck. Then drive the mower in reverse at a 45 degree angle to the curb (with the left side of the mower closest to the curb) until you are within an inch or two of the left-rear tire hitting the curb. Stop and then gradually bump into the curb with that tire until it is just on top of the curb. If the tire slips even while lurching the mower into the curb, then the curb is too high and you should use ramps or find another way. The mower should still be at a 45 degree angle to the curb. Now, while maintaining the same angle to the curb, continue to back up until the right-rear tire is close to the curb. Using the same technique lurch the right tire onto the curb. After both rear wheels are on top of the curb, turn the mower counterclockwise and back up so the left caster wheel comes over and last should be the right caster wheel as the mower is twisting to the left (counterclockwise). The technique works the best if you try not to drive backwards at a near 90 degree angle to the curb but get all of the wheels to go over while the mower is moving at least a 45 degree angle to the curb. To drive off a curb, first try driving up onto it to make sure the curb is not too high. If the curb is not too high, drive the right-front caster off first while driving toward the curb at a 45 degree angle (the curb should be to your right). Then, maintain that 45 degree angle so the left caster goes over, then the right-rear wheel, then the left rear wheel. Do NOT step off the mower during ANY maneuver.

5.5.1 Never drive straight onto or off a curb

Never drive straight onto or off a curb. If you do the whole procedure at a very sharp angle it will tend to minimize the contact of the mower deck with the curb and you will be able to more safely control the mower.

5.6 Mowing on Varying Terrain

See the Safety Instructions section of this manual, especially the parts on:

- Initial Operating Safety Guidelines
- Operation On Slopes
- Operation In Reverse
- Operation In Forward Direction
- Operation During Zero-Radius Turns

5.7 How to Adjust Neutral

Neutral refers to the mower movement when the engine is set to full throttle, control handles are moved to the inward/operate position and are in the neutral position. The mower should not move forward or backward during this time. If the mower is moving forward or rearward, the neutral setting must be adjusted. The transaxle has a Return-to-Neutral (RTN) device built into the linkage of the assembly for reverse only. Before adjusting neutral, it is necessary to lift the rear drive wheels off the ground using a jack and stands. Additionally, the OPC seat switch will need to be engaged. To make the adjustment, remove the rear tire and remove the control rod at the transaxles control arm. **(Fig. 1, A)** Loosen the ¼" Allen bolt **(Fig.1, B)** and rotate the RTN device on the pump corresponding to the wheel that needs adjustment. If the right wheel turns in the neutral position, then the right transaxle RTN needs to be adjusted. The RTN mechanism should be rotated until the neutral position is found and then retighten the ¼" allen bolt. Use care not to over tighten the allen bolt. Repeat the procedure on the other transaxle if necessary.

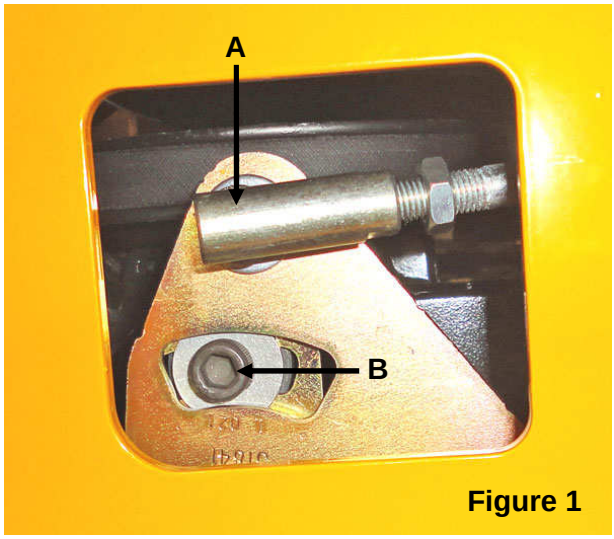


Figure 1

5.8 How to Perform the Tracking Adjustment

First ensure that the tire pressure is equal on both rear drive tires (18-22 psi). Drive the mower on a level parking lot with the engine at full throttle. Check that the mower drives in a straight line when both hand controls are held to the full speed position. If not, park the mower and **stop the engine**. The adjustment is made by loosening the jam-nuts on the control rods (Fig. 1, Transaxle) (Fig.2, Control Handle) (this may need to be done to one or both control rods) and adjusting the control rods. Once the jam-nuts are loosened at the front and rear of the control rod proceed to turning the control rod clockwise or counter-clockwise to lengthen or shorten the effective length of the control rod.

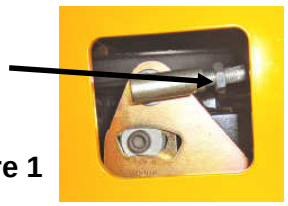


Figure 1

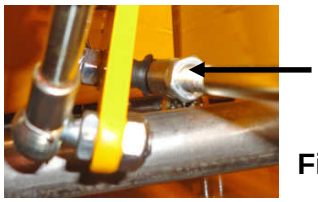


Figure 2

If the rod is made longer it will increase the forward speed capability for that side of the mower and if the rod is made shorter it will slow down that side of the mower. Therefore, if the mower is tracking to the left, either the left side needs to go faster (by lengthening the left-side rod) or the right side needs to go slower (by shortening the right-side rod). If the mower is tracking to the right, either the right side needs to go faster (by lengthening the right-side rod) or the left side needs to go slower (by shortening the left-side rod). It is important that neither rod should be lengthened too far, as mentioned above.

After getting the mower to track straight, readjust the neutral adjustment on the pump by using a ¼" allen wrench at the Return-to-Neutral (RTN) mechanism, if necessary. It is normal to make these adjustments from time to time.

5.9 How to Test/Use the Blade Clutch/Brake Switch

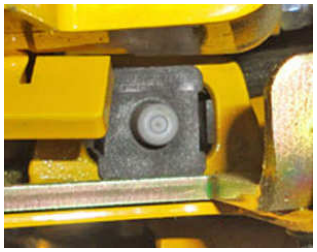
WARNING

Before testing the blade clutch/brake operation, make sure the area is clear and there is nothing vulnerable to thrown objects from under the mower. No one should be near the mower deck or in its line of discharge. The discharge chute deflector should be in the down position. Move the engine throttle to ¾ speed setting. When mowing, the engine speed should always be at its highest setting. The engine governor will regulate the engine according to the different mowing conditions at that setting. Sit evenly on seat and keep both feet firmly on the foot platform and turn on the blade clutch switch. Run blades for a minute or so. Try engaging and disengaging the blades a few times about 10 seconds apart. If the blades do not start and stop in a few seconds each time, service the blade brake system or contact your local Wright dealer. Under mowing load, the clutch's life will be the greatest if engaged and disengaged at the ¾ throttle level.

5.10 How to Test the Operator Presence Control (OPC) Switch

With blades ON, try lifting your weight off the seat to test the Operator Presence Control switch (OPC). The engine should begin to kill after a ½ second delay and the blades should stop within a few seconds. If not, service the OPC system or contact your local Wright dealer.

Seat Switch
Located under the seat
P/N 52410003 / SP black



Control Levers Switch
Located below each handle assy.
P/N 52410006 / DP Black

Seat up Switch
Located under the seat, right side
P/N 52410006 / DP black

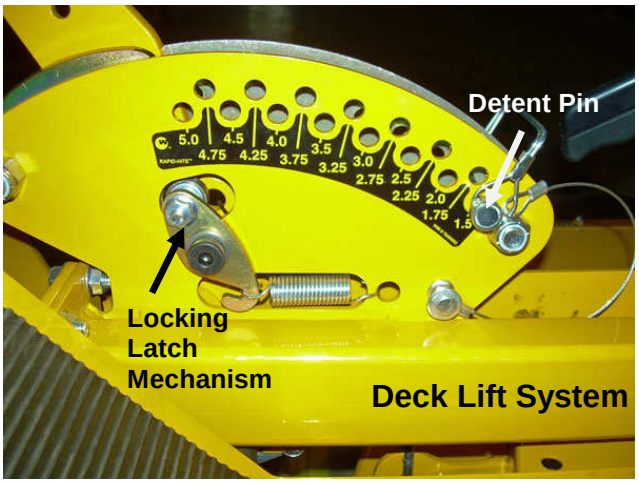
6 SERVICE AND ADJUSTMENTS

6.1 Tire Maintenance and Pressure

WARNING

Excessively worn tire tread is dangerous on all hills. Replace drive tires with less than 3/32" of any tread groove left. Use tires with the tread pattern recommended by Wright Mfg., Inc. only. Keep the tire pressure in the drive tires between 18 and 22 psi. Lowering tire pressure will affect deck pitch. Always check pitch any time tire pressure is set below recommended pressures. Higher pressures will cause the tires to have less traction, which will force you to go slower and with less safety and give you a harder ride. The front casters are equipped with non-pneumatic tires and do not require any air. They do not have any tread but should be replaced when excessively worn.

6.2 Height-of-Cut



Before adjusting the height-of-cut be sure the mower blades are off, and the rear tires have proper air pressure. Check for even tire wear. The height-of-cut can be adjusted the following way:

- The cut height is set by allowing the foot lever to rest on a detent pin inserted into the height selection plates. To set the height of the pin, raise the mower deck to the transport height position and lock in. This is achieved by pressing the pedal all the way forward until the latch system engages the pedal and locks the deck up in the transport position. With the load removed from the detent pin, it can be changed to the desired cut height. Once the pin is securely connected to the selector plate, the deck can be lowered to the desired cutting height by pressing in on the deck-lift foot pedal until the latch releases the pedal. Now the deck can be lowered until it comes in contact with the pin.

6.2.1 Deck Lift Spring Assist Adjustment

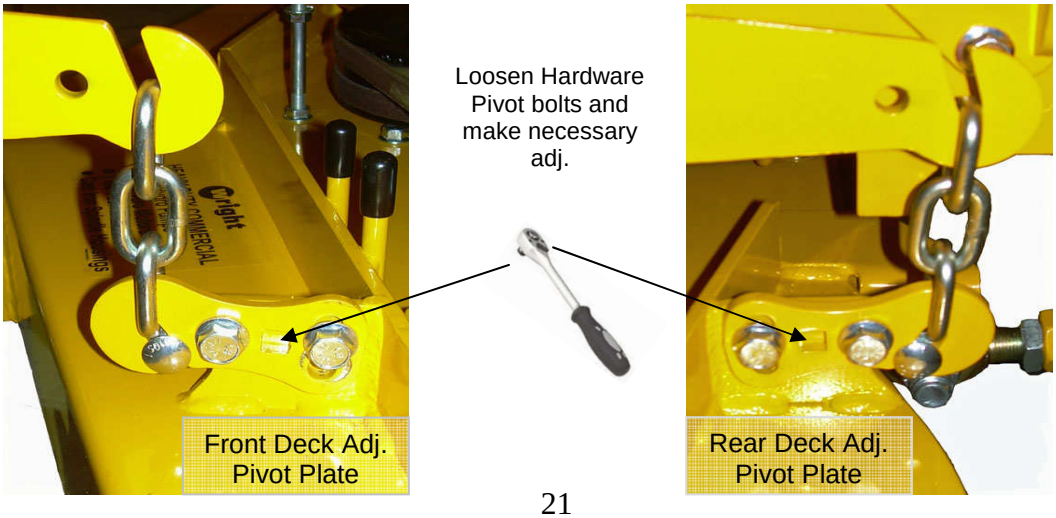
To adjust the deck lift assist spring, raise the deck to the up and locked (transport) position. Remove spring from the front spring attachment. Remove and reinstall in the upper hole (less tension) and lower hole (more tension). Reinstall spring to front attachment.

6.2.2 Deck Adjustments

The mower deck can be adjusted for pitch and side-to-side levels. Pitch is the relationship between the front off the blade and the rear of the blade in regards to the height of the cut. A positive pitch (front of the blade is lower than the rear of the blade) of ¼" is the optimum setting.

Each of the four chain hangers connecting the mower deck to the lift assembly has an adjustable pivot plate located on the top of the mower deck. On a flat and level surface, the pitch and side-to-side variation should be checked regularly. Note: it is necessary to have a front to rear pitch of 1/4 inch aiming the front of the deck toward the ground. Adjust one side at time when setting deck height adjustment.

If the deck is leaving stripes, it may be necessary to check the adjustment on the four deck hangers.

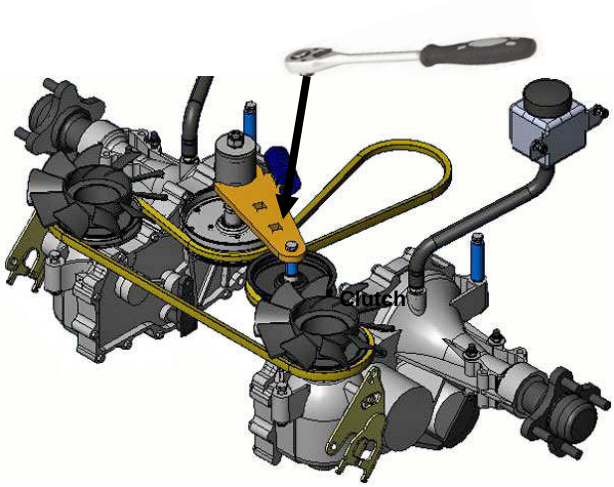


6.3 Belt Tension Adjustment

The pump drive belt is self-adjusting, and requires no adjustment. The blade drive belt is self-adjusting also and requires no adjustment. Replace tension idler assembly if worn or failing to maintain proper tension.

6.3.1 Replacing the Drive Belt

- Stop the engine, remove the key and wait for all moving parts to stop.
- Remove engine to blade cutter deck belt. (Refer to “replacing the cutter deck belt” section)
- Raise rear the seat tray.
- Remove the belt by using a ½” ratchet and extension to relieve the belt tension.
- Reinstall in reverse order. Figure shows belt routing and spring compression direction.



6.3.2 Replacing the Cutter Deck Belt

- Stop the engine, remove the key and wait for all moving parts to stop.
- Remove the deck covers.
- Remove the belt by using a ½” ratchet and extension to relieve the belt tension.
- Reinstall in reverse order. Figure shows belt routing and spring compression direction.

6.4 Lubrication

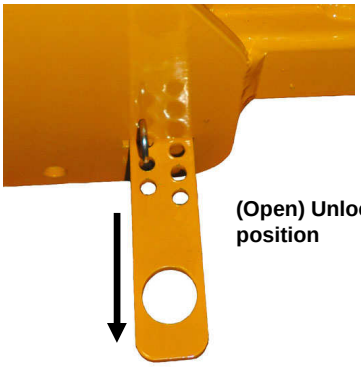
The Wright ZTO is made with sealed bearings, oil based bushings and with limited grease fittings therefore only the front castor wheels and caster pivots need to be greased. (See maintenance chart for service intervals)

- Caster Pivots - Remove dust cap, cotter pin and hex nut. Inspect grease seal and bearings. Fill chamber with grease and reinstall in reverse order.
- Caster Wheels – Wipe grease zerk with clean rag, using grease gun, pump in several pumps per side, weekly.

6.5 How to Move the Mower if the Engine Won't Start

Remove the R-clip from the neutral release arm (bypass valve). Pull arm outward and install R-clip. The control handles must be in the "In, Drive" positions to release the parking brake.

(Closed) Run position



(Open) Unlocked position

6.6 Hydraulic System

WARNING

Whenever servicing the hydraulic system, it is of the utmost importance to keep any dirt or debris from getting into the system. Clean off all parts before disassembly and assembly. When any of the hydraulic parts are disconnected or removed or when the oil is changed, air must be bled from the system. If air is entrained in the system, loss of power, excessive heat, and damage to the transaxles may occur.

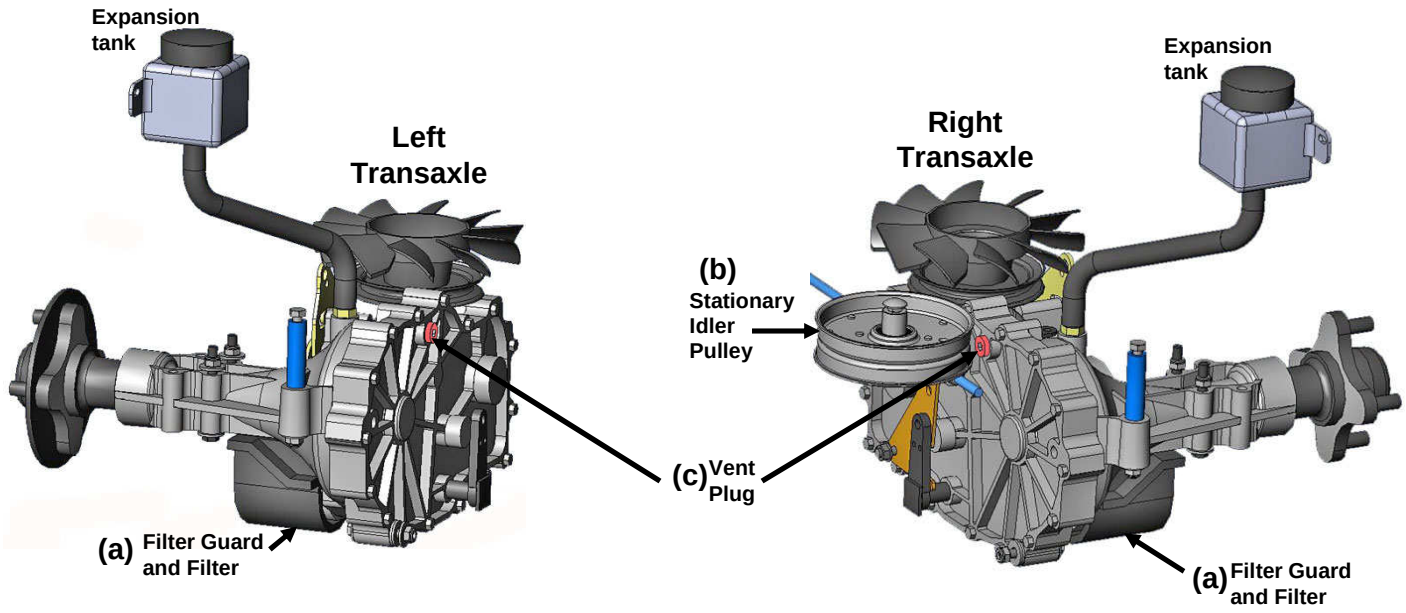
6.7 Transaxle Fluid Change Procedure

WARNING

To ensure constant fluid quality levels and longer life, an initial oil and filter change at 75 – 100 hours, then every 400 hour thereafter is recommended.

Work on a level surface and move control levers to the outward "Park/Brake On" position.

1. Remove filter guards from both transaxles. (**a**)
2. Clean any loose debris from around the filter. It is very important that no dirt or contamination enter the hydraulic system.
3. Remove filters and allow oil to drain from the drive system.
4. After the oil has drained, wipe the filter base surface off and apply a film of new oil to the gasket of the new replacement filter (Wright Mfg. P/N 39410007).
5. Install filters by hand, turn ¾ to one full turn after the filter gasket contacts the filter base surface.
6. Reinstall the filter guards and torque screws to 65 In lbs (7.3 Nm) each.
7. Relieve drive belt tension and remove belt from stationary pulley. (**b**)
   Note: Belt only needs to be off of the stationary pulley as the pulley needs to be removed in order to remove the transaxle vent plug.
8. Remove stationary idler pulley. (**b**)
9. Remove vent plug on each transaxle. (**c**)
10. Add 2.0 – 2.5 qts. of 20W-50 motor oil to each transaxle though the transaxle expansion tanks, this should bring the oil level to the vent port.
11. Install and torque vent plugs to 180 in. lbs (20.3 Nm)
12. Install stationary idler pulley and drive belt.
13. Continue to fill through the expansion tanks until the "Full Cold" line is reached.
14. Re-install expansion tank cap by hand and proceed to purge procedure.



6.8 Transaxle Purging Procedure

⚠ WARNING

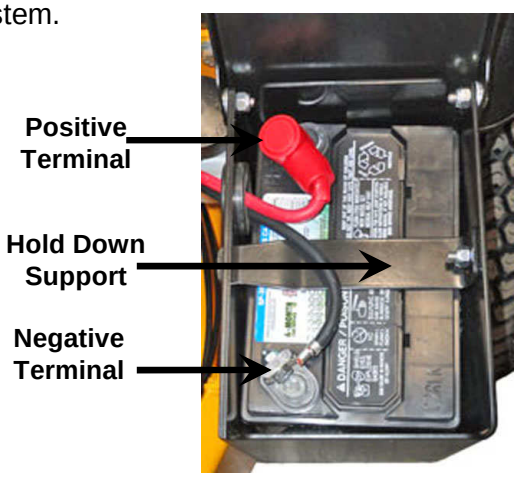
Lift the mower so that the rear wheels are off the ground. Be careful to support the mower so that it will not fall or tip while the system is bled of air. Open both bypass valves (see section 6.5). Start the machine and slowly move the control levers back and forth five or six times. It may be necessary to repeat the above steps until all the air is purged and the rear wheels are turning at normal speed. When the transaxles operate at normal noise levels and moves smoothly forward and reverse at normal speeds, then the transaxle is considered purged. After purging is complete, close both bypass valves and adjust the oil level in the reservoir if necessary.

6.9 Battery Service

⚠ WARNING

The battery is 12 volts and is a maintenance free battery. Charge the battery only if it will not start the mower effectively. Remove the battery from the mower before charging. Follow the instructions of the battery charger for proper and safe charging of the battery. Always make sure the Positive terminal is connected to the Positive battery post and the Negative terminal is connected to the Negative battery post. Reversal could cause damage to the electrical system.

- Keep the battery and terminals clean.
- Keep battery bolts tight.



6.10 Cutting Blades

WARNING

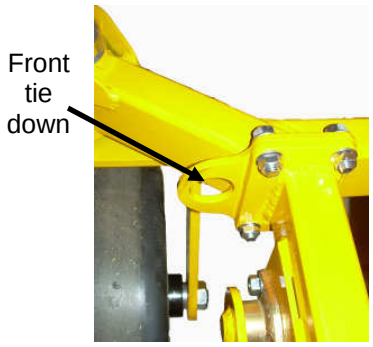
In order to maintain to best cut, it is important that the blades are well sharpened and not damaged. Bent or cracked blades or blades with large nicks need to be replaced. Blades must be balanced after sharpening. To change the blades;

- Stop engine, remove the key and wait for all moving parts to stop.
- Engage parking brake.
- Lift front of mower and secure in the raised position with jack stands.
- Remove the blade bolt by turning counterclockwise.
- Apply anti-seize to the blade bolt.
- Install new or re-sharpened blade, start mounting bolt by hand.
  (Ensure the blade spacers are reinstalled with the same Qty and location)
- Torque blade bolt 70-80 ft lbs

6.11 Transporting / Tie Down Locations

Use a heavy duty trailer or truck to transport the ZTO. Lock brake and block wheels. Securely fasten the unit to the trailer or truck with straps, chains, cable or ropes.

o Fasten unit to trailer or truck using tie down locations shown in photos.



6.12 Loading and Unloading

WARNING

Use extreme caution when loading or unloading units on/off trailers or trucks. One full width ramp that extends beyond the rear tires is recommended rather than individual ramps for each side of the unit. The ramp should be long enough so that the angles between the ramp and the trailer or truck does not exceed 15 degrees. A steeper angle may cause the mower deck components to get caught as the unit moves from ramp to trailer or truck. Always put the deck in the transport (up & locked) position when loading or unloading. Never attempt to turn the mower around on the ramp. Avoid sudden acceleration when driving up a ramp and sudden deceleration when backing down a ramp.

6.13 ROP's Installation & Operation – P/N 98410135

IMPORTANT when using a ROPS:

1. **DO NOT** cut, drill, modify or repair ROPS in any manner.
2. Always replace a damaged ROPS.
3. Always use the seatbelt and ROPS together.
4. Frequently inspect roll bar and seat belts for damage or loose hardware.
5. Use extreme care when working close to fences, ditches, trees and on hills.
6. Check overhead clearances carefully before driving under any objects.
7. **DO NOT** leave operator's position while unit is running.
8. **DO NOT** carry riders.

9. If ROPS is a folding ROPS, ROPS should be in the upright position and pinned when operating the machine.
10. See General Safety Information below;

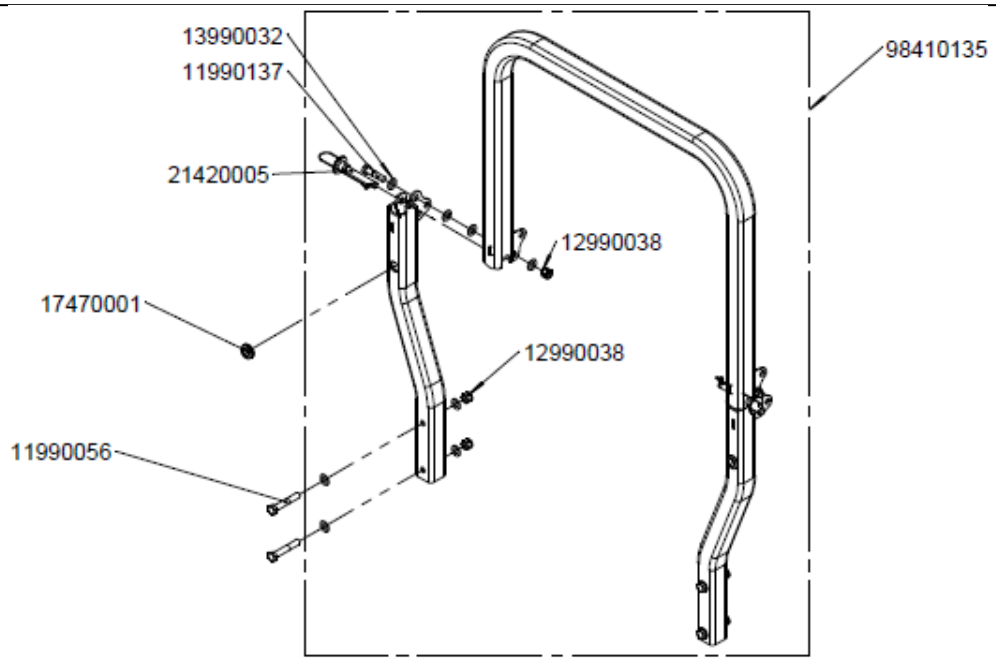
This symbol means **ATTENTION! YOUR SAFETY IS INVOLVED**. The message that follows the symbol contains important information about safety. Carefully read the message.

This Roll Over Protective Structure (ROPS) has been certified to industry and/or government standards. Any damage or alteration to the ROPS, mounting hardware, or seat belt voids the certification and will reduce or eliminate protection for the operator in the event of a roll-over. The ROPS, mounting hardware, and seat belt should be checked after the first 100 hours of machine operation and every 500 hours thereafter for any evidence of damage, wear, or cracks. In the event of damage or alteration, the ROPS must be replaced prior to further operation of the machine.

The seat belt must be worn during machine operation when the machine is equipped with a certified ROPS. Failure to do so will reduce or eliminate protection for the operator in the event of a roll-over.

Substitution of mounting hardware, seat belt, etc, with components not equal or superior to the original certified components will void the certification and will reduce or eliminate protection for the operator in the event of a roll-over.

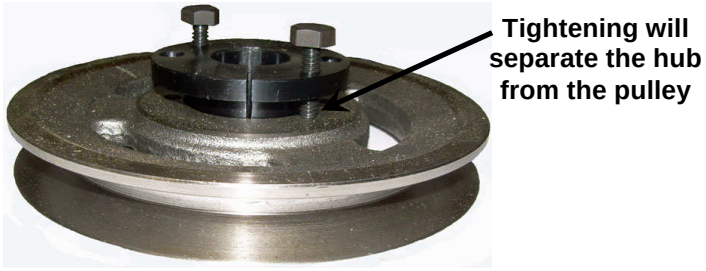
All labels, caution decals, ROPS certification data, etc. must be kept intact and legible.



PN	DESCRIPTION	QTY
11990056	HARDWARE, BOLT HEX, 1/2-20 x 3 Z5	4
11990137	BOLT HEX, 1/2-13 x 2 Z5	2
12990038	NUT, NYLOCK, 1/2-20 Z5	6
13990032	WASHER, 1/2 x 2 x 0.062 Z5	16
15990048	COTTER PIN, 0.080 X 0.750	2
17470001	GROMMET, 0.688 x 1.000 x 0.250	2
21420005	DETENT PIN, 0.500 X 3.500, SOCKET ROPS	2
98410135	ROPS, SOCKET MOUNT	--

6.14 Spindle and Drive Pulley Split hub R&R

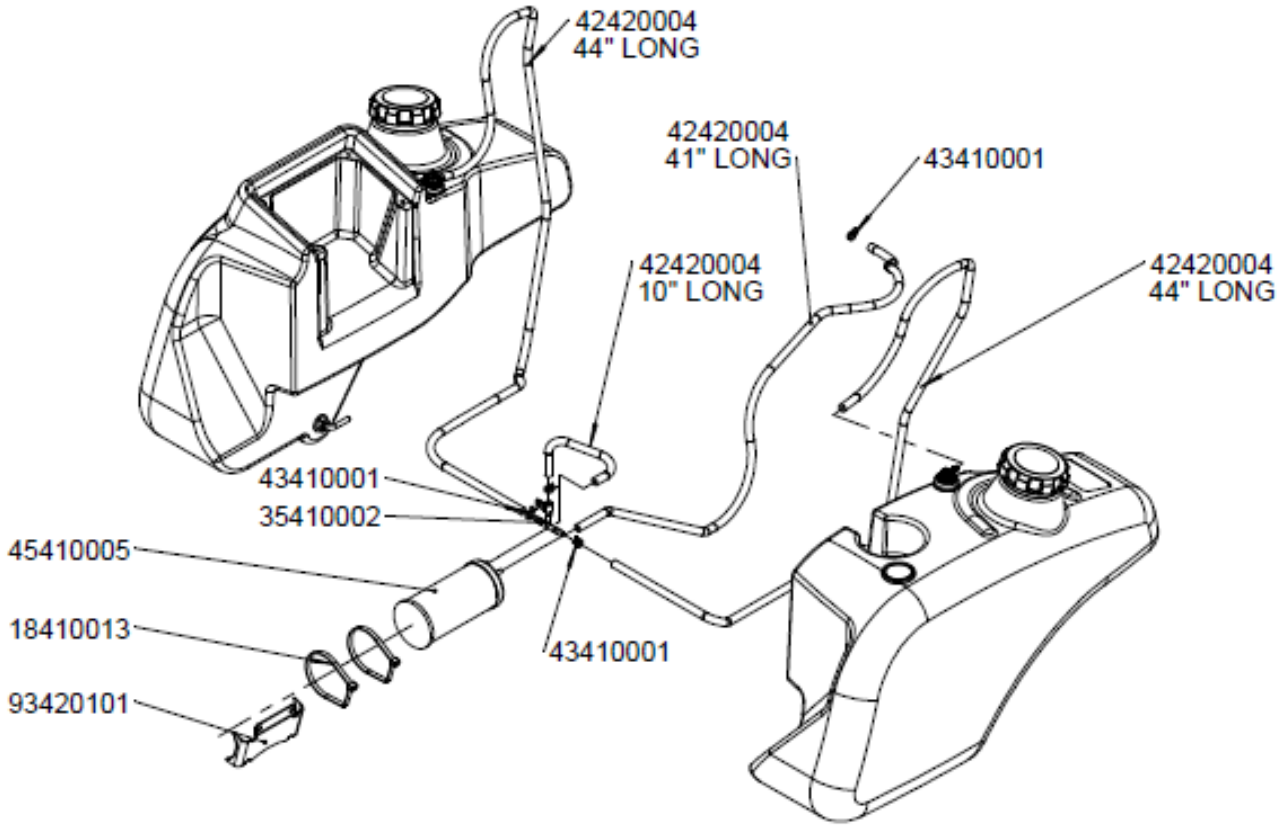
- Remove 2, ¼" bolts from split hub and install in threaded holes in hub.
- Slowly tighten each bolt, alternating as you tighten bolts against the pulley.
- The hub will separate from the pulley.
- Replace grade 8 bolts and install in reverse order using the assembly holes to tighten hub onto pulley and spindle shaft.



6.15 Fuel Evaporation System

All Wright ZTO's need to have this mandatory feature.

- Do Not alter or remove.
- Do not fill fuel tanks completely. Fill until level is 1 inch below the bottom of the white fill neck insert.
- Over-filling could result in clogging the roll-over vent and/or contaminating the purge canister.
- The vapor canister is located under the seat.
- Inspect and clean dust filter every 500 hrs or annually.



6.16 Kawasaki / Briggs & Stratton Engine Manual / Maintenance

It is very important that all users of this unit read and understand the Kawasaki / Briggs & Stratton Engine Owner's Manual. These manuals contain; safety awareness, emissions, maintenance and warranty information that is critical for the care of your engine. Below is the periodic maintenance chart directly from the Kawasaki / Briggs & Stratton Owner's Manuals, which is included with the sale of the ZTO.

Kawasaki Maintenance chart

♦ : Service more frequently under dusty conditions.
K : Service to be performed by an authorized Kawasaki dealer.

MAINTENANCE	INTERVAL						
	Daily	First 8 hr.	Every 100 hr.	Every 200 hr.	Every 250 hr.	Every 300 hr.	Every 500 hr.
Check and add engine oil.	•						
Check for loose or lost nuts and screws.	•						
Check for fuel and oil leakage.	•						
Check battery electrolyte level.	•						
♦ Check or clean air inlet screen.	•						
♦ K Clean dust and dirt from cylinder and cylinder head fins.			•				

MAINTENANCE	INTERVAL						
	Daily	First 8 hr.	Every 100 hr.	Every 200 hr.	Every 250 hr.	Every 300 hr.	Every 500 hr.
Tighten nuts and screws.			•				
Change engine oil.		•	•				
♦ Check and clean oil cooler fins.			•				
Clean and regap spark plugs.			•				
Change oil filter.				•			
♦ Replace air cleaner primary element.					•		
♦ Check air cleaner secondary element.					•		
K Clean combustion chamber.						•	
K Check and adjust valve clearance.						•	
K Clean and lap valve seating surface.						•	
♦ Replace air cleaner secondary element.							•

Briggs and Stratton Maintenance chart

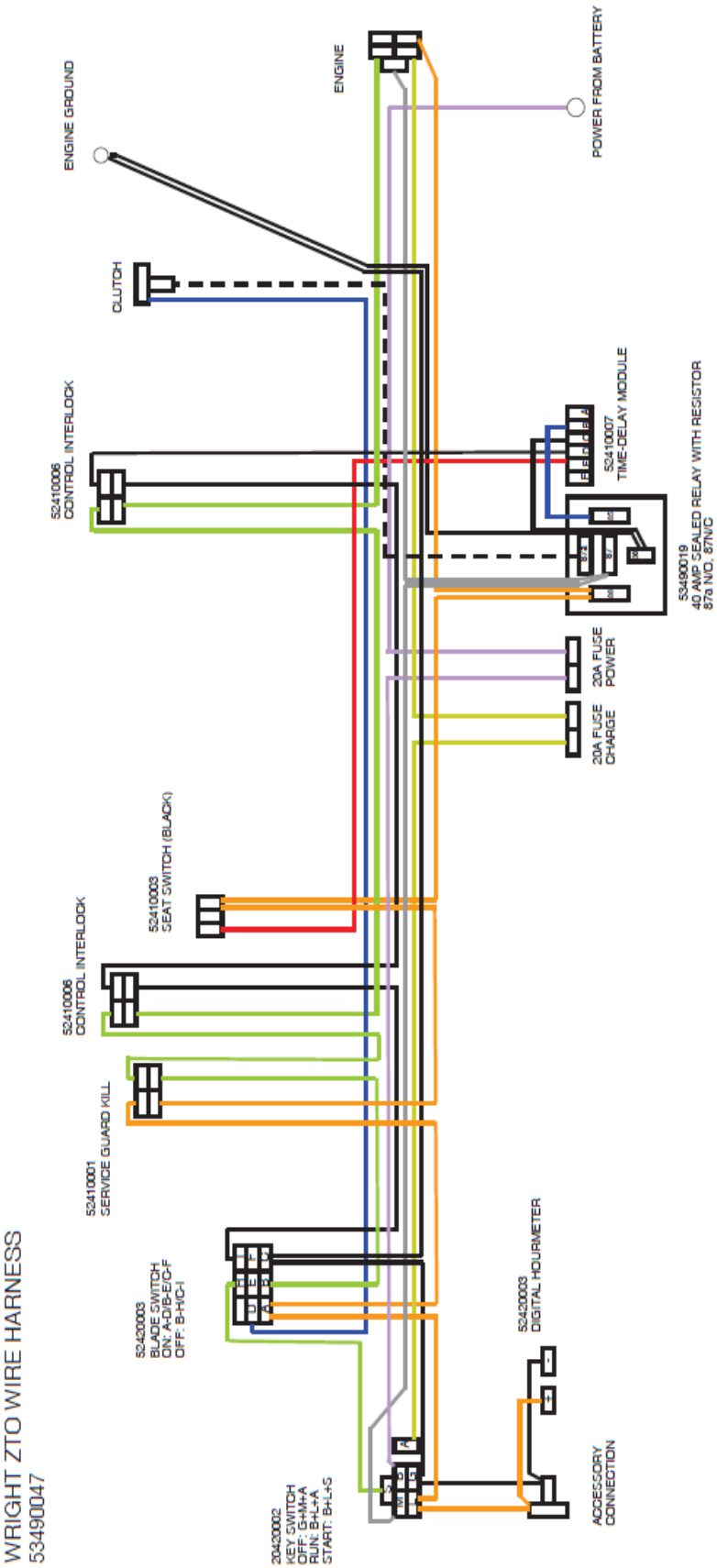
Maintenance Chart
First 5 Hours
Change oil
Every 8 Hours or Daily
Check engine oil level
Clean area around muffler and controls
Clean finger guard / rotating screen
Every 25 Hours or Annually
Clean air filter*
Every 50 Hours or Annually
Change engine oil
Replace oil filter
Check muffler and spark arrester
Every 250 Hours or Annually
Change air filter
Annually
Replace air filter
Replace spark plugs
Clean air cooling system*
Replace fuel filter
Check valve clearance**
* In dusty conditions or when airborne debris is present, clean more often.
** Not required unless engine performance problems are noted.

6.17 Cleaning the Mower

The underside of the mower deck should be checked and cleaned twice daily, and more often if the grass being mowed is lush or wet. The entire mower should be cleaned daily at the end of the work day.

Cleaning should be done with a leaf blower or low-pressure compressed air. Wash with water only when necessary and do not use a pressure washer or nozzle as the water can enter electrical connections causing an electrical short, rust and corrosion. When washing with water, do so when the unit has cooled down. Washing a hot machine can cause various unseen system damage. If water is used for cleaning, immediately dry it with a leaf blower or low-pressure compressed air. Once the wash is complete, always lubricate and grease all applicable areas.

7 Electrical Schematic



8 ZTO Consumables / Maintenance Items

P/N	Description
13990007	BLADE SPACER, 5/8 X 1/4
17420012	BUMPER, RUBBER, BLACK
17460017	CHUTE DEFLECTOR, RUBBER PC ONLY
17460018	STRIPING RUBBER, ADJUSTABLE 48/52
17460021	STRIPING RUBBER, ADJUSTABLE 61
18410012	DECK COVER KNOB
24420030	PIN
39410004	HYDRO, FAN AND PULLEY KIT, HG# 71907
39410007	FILTER, FOR ZT-3400, HG# 52114
45410002	FUEL TANK CAP, NON-VENTED, CARB, 3"
45410005	CARBON CANISTER
45410020	FUEL, REMOTE VENT WITH INTERNAL VALVE
52410003	SWITCH, OPC , 2 LB INTERNAL SPRING, BLACK
52410006	SWITCH, NO/NO
52410007	MODULE - TIME
52420002	THROTTLE CABLE
52420003	SWITCH, BLADE ON/OFF, RED
52420009	SOLENOID
53490019	RELAY, FOR MAIN HARNESS
71440001	BLADE, 18"
71440002	BLADE, 16 1/2"
71440003	BLADE, 21"
71440008	BLADE, OFFSET, FUSION 16.5"
71440009	BLADE, OFFSET, FUSION, 18"
71440010	BLADE, OFFSET, FUSION, 21"
71440011	BLADE, CE ROLLED AIRFOIL LOW LIFT 16.5”
71440012	BLADE, CE ROLLED AIRFOIL LOW LIFT, 18"
71440013	BLADE, CE ROLLED AIRFOIL LOW LIFT 21"
71460065	BELT, WRAPPED, B SECTION, 57.04 EL (Blade - Blade, 52")
71460067	BELT, WRAPPED, B SECTION, 66.04 EL (Blade - Blade, 61")
71460070	BELT, WRAPPED, B SECTION, 52.04 EL (Blade - Blade, 48")
71460085	BELT, WRAPPED, B SECTION, 131.04 EL (Engine - Blade, 52")
71460096	BELT, WRAPPED, B SECTION, 139.04 EL (Engine - Blade, 61")
71460097	BELT, WRAPPED, B SECTION, 127.04 EL (Engine - Blade, 48")
71460114	SPINDLE ASSEMBLY, NON THRU BOLT
71460137	BELT, WRAPPED, A SECTION, 79.85 EL (Drive Belt)
72490002	ANTI SCALP ROLLER
77410008	ROD END, 5/16-24
77410009	ROD END, 5/16-24 LH
91410052	ENGINE GUARD WEIGHT, 11.25" X 7.625", WZTO
91410055	ENGINE GUARD WEIGHT, 15.25" X 8.875", WZTO
95410021	WHEEL SPACER KIT, WZTO
95460011	DECK LIFT FOOT LEVER EXTENSION KIT, WZ
98410135	ROPS, SOCKET MOUNT
98460031	BEARING KIT, CASTER ARM
98460046	CASTER WHEEL BEARING KIT, WITHOUT RACE

9 Decals

Part Number	Description	Qty
76410003	DECAL, ALL LOGOS	1
76460001	DECAL, DANGER BLADE HAZARD	2
76490001	DECAL, SHIELD MISSING	2
76490007	DECAL, 52" DECK SIZE	1
76490008	DECAL, 48" DECK SIZE	1
76490012	DECAL, 61" DECK SIZE	1
76490023	DECAL, CIRCLE WITH "W"	2
76490028	DECAL, CE, DANGER BLADE HAZARD	2
76490029	DECAL, CE, SHIELD MISSING	2
76490042	DECAL, CE 122CM DECK SIZE	1
76490043	DECAL, CE 132CM DECK SIZE	1
76490044	DECAL, CE 155CM DECK SIZE	1

Part Number	Description	Qty
76490046	DECAL, CE NOISE, 105	1
76490050	DECAL, FIRE HAZARD WARNING DECAL	2
76490058	DECAL, CE, NOISE PROTECTION WARNING	1
76490061	DECAL, DECK COMMERCIAL BENEFITS, WVGD	1
76490063	DECAL, DECK HEIGHT SELECTOR, Z	1
76490065	DECAL, DASH, Z	1
76490059	DECAL, AMERICAN FLAG	1
76490100	DECAL, AERO-CORE, DECK	1
76490101	MOWER PATENT NUMBERS	1
76490113	DECAL, ZTO	1
76490114	DECAL, CONTROL, ZTO	2
76490115	DECAL, CAUTION, WZTO	1

76410003

76460001

76490001

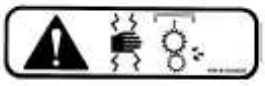
76490007

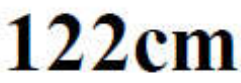
76490008

76490012

76490023


76490028


76490029



76490042

76490043

76490044

76490046

76490050


76490058


76490059

76490061


76490063


76490065

76490100

76490101

76490113

76490114

76490115

10 Maintenance Interval Chart

MAINTENANCE ITEM	ENGINE ITEMS	SEE NOTE BELOW	FIRST 8 HOURS	DAILY	EVERY 25 HOURS	EVERY 100 HOURS	EVERY 200 HOURS	EVERY 300 HOURS	ANNUALLY
Inspect for cracks in frame, cutter deck or other steel parts		*2	X						X
Inspect cutter deck belts for wear and alignment			X		X				X
Check all bolts and nuts for tightness (tighten as necessary)			X	X					X
Check transaxle oil reservoir level and fill as needed (use 15-50 motor oil)			X			X			X
Inspect drive belt, idler pulley(s) and idler springs for wear and alignment			X		X				
Grease caster wheel bearings and caster yokes (refer to Lubrication section)			X		X				X
Check tire pressure; Rear tires 18-22 psi			X	X					X
Check and clean engine cooling fins with compressed air	Engine	*1				X			X
Replace fuel filter	Engine	*1	X						X
Check ROP's fasteners for tightness and proper installation (Tighten/Correct as necessary)				X					
Libricate seat platform pivots and seat rails wih waterproof grease			X		X				
Lubricate Operator Presence Control pivots and control rod with waterproof grease			X		X				
Check engine oil and add as needed	Engine	*1		X					X
Check for fuel or oil leakage - correct as needed	Engine	*1		X					X
Check and clean air intake screen	Engine	*1		X					X
Clean engine blower screen and fins with compressed air	Engine	*1		X					X
Clean Engine Oil Cooler (If Equipped) with compressed air	engine	*1				X			
Clean mower with compressed air-do NOT use a pressure washer				X					X
Check for loose hardware (e-clips, snap rings, nuts, etc.)				X					X
Check blades for wear and sharpness (sharpen and balance or replace as necessary)				X					X
Clean out debris under blade belt cover				X					X
Scrape clean underside of cutter deck				X					X
Check blade mounting bolts for proper tightness				X					X
Check blade spindle mounting bolts for proper tightness				X					X
Inspect tires, replace as needed					X				X
Change Transaxle Oil and Filter (An intial oil & filter change is recommended at 75-100 hrs)									400hrs
Clean and re-gap spark plug (replace as necessary)	Engine	*1				X			X
Change engine oil	Engine	*1	X			X			X
Change engine oil filter	Engine	*1					X		X
Replace air cleaner Primary Element	Engine	*1					250hrs		
Replace air cleaner Secondary Element	Engine	*1							500hrs
Completely inspect for excessive wear in all parts of mower, including control system (replace worn parts)							X		X
Inspect and replace (if necessary) worn main cutter deck idler pulleys or pulley bearings (if applicable)							X		X
Replace (if necessary) excessively worn caster wheels and roller bearings							X		X
Remove battery and clean battery, battery box and battery cable							X		X
Check and adjust valve clearance	Engine	*1						X	

NOTES:

***1** - Refer to Engine Manufacturers Owners Manual

***2** - Contact an authorized Dealer immediately if any cracks are found

The service intervals indicated are to be used as a guide. Service should be performed more frequently as necessary by operating conditions

Maintenance Record

Date	Maintenance/Service Performed	Unit Hours	Shop/Technician

WRIGHT MANUFACTURING, INC. POWER EQUIPMENT LIMITED WARRANTY

THIS WARRANTY SUPERSEDES ALL PREVIOUS ON UNITS WITH A RETAIL SALES DATE ON OR AFTER 04/01/05

Wright Manufacturing, Inc. (hereinafter: WMI) warrants to the original owner that the new WMI mower accompanying this document will be free from manufacturing defects in materials or workmanship subject to the following limitations and exclusions. Any part of the WMI commercial mower manufactured by WMI and found, in the reasonable judgment of WMI, to be defective in materials or workmanship, will be repaired or replaced by an Authorized WMI Service Dealer without charge for parts and (except as excluded below) labor. This Warranty is limited to the original Owner and the mower this document was provided with and is not transferable. Dealer demo units with less than fifty hours when first retailed shall also be covered by this limited warranty. Proofs of Purchase, Authorized Dealer performed Pre-Deliver Service and the First Eight Hour Service will be required by the Authorized WMI Service Dealer to substantiate any warranty claims. All WMI warranty work must be performed by an Authorized WMI Service Dealer and item must be delivered to the dealer prior to the expiration of the warranty period. This Warranty is limited to the following specified periods from the date of the original retail purchase for defects in materials or workmanship and will commence upon the date of original retail purchase. This warranty shall apply only if the warranty registration form has been completed and returned to Wright Manufacturing, Inc. within 30 days from the date of original retail purchase. This warranty includes only the cost of parts and labor (when applicable). This warranty applies only to the replacement of defective or otherwise warrantable WMI OEM parts being replaced with WMI OEM parts.

- All parts and components (except as noted below) – 2 years
- Belts – 90 days
- Battery – 90 days
- Engine – warranty covered by engine manufacturer and handled through the respective Authorized engine Dealers

Exclusions:

Any damage or deterioration due to normal use, wear and tear or exposure
All filters, engine oil, hydraulic oil, tires and tubes
Bent, fractured or broken parts occurring through impact or hard use
Clutch: linings, anti-rotation failure or other failure due to improper replacement installation
Cost of regular maintenance service, parts or adjustments
Worn bearings (other than spindle bearings; see above)
Worn bushings, cotters, clips, pins and retainers
Grease fittings/zerks
Paint, paint fading, cosmetic imperfections and steel surface imperfections
Fabric, cushion and rubber grip wear or damage
Cutting blades, light bulbs, fuses
Damage due to loose pulleys on shafts
Damage due to loose wheel hubs on tapered hydraulic motor shafts
Fire Damage
Abrasion or corrosion wear or damage

Repair Parts Replaced During Original Warranty

All Repair parts (excluding wear or otherwise excluded items) installed during the warranty period are warranted until the end of the respective original period according to the categories above except in the case that the respective original warranty period expires in less than ninety (90) days after the installation of the part(s). If this happens then the parts are warranted for a total of ninety (90) days from the time of their installation.

Rental Use

The above warranty periods are limited to maximum of ninety (90) days for mowers that are used for rental purposes.

The WMI mower, including any defective part, must be returned to an Authorized WMI Service Dealer within the warranty period. The expense of lost production time and delivering the mower to the Authorized WMI Service Dealer for warranty work and the expense of returning it to the Owner after repair will be paid for by the Owner. WMI's responsibility is limited to making the required repairs and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any WMI mower. This Warranty does not apply to any mower that was delivered to an Owner prior to the Pre-Delivery Service as specified in the Owner's Manual. This Warranty does not apply to any mower that was shipped in a crate to the Owner or delivered to the Owner by non-employees of an Authorized Dealer. For the Owner's protection and a valid Warranty, please note: WMI does not permit Authorized Dealers to make non-face-to-face deliveries of the mower and any who are found doing so are subject to immediate cancellation as Authorized Dealers. This Warranty does not cover any mower that has been subject to misuse, neglect, negligence, burning in any fire, an accident, or that has been operated or maintained in any way contrary to the operating and maintenance instructions as specified in the Owner's Manual. The Warranty does not apply to any damage to the mower that is the result of improper maintenance or to any mower or parts that have not been assembled or installed as specified in the Owner's Manual. The Warranty does not cover any mower that has been altered or modified changing performance or durability. In addition, the Warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the reasonable judgment of WMI, are either incompatible with the WMI mower or adversely affect its operation, performance or durability.

WMI reserves the right to change or improve the design of any mower without assuming any obligation to modify any mower previously manufactured.

All other implied warranties are limited in duration to the two (2) year warranty period or ninety (90) days for mowers used for rental purposes. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration for the appropriate two (2) year or ninety (90) day warranty period. WMI's obligation under this Warranty is strictly limited to the repair or replacement of defective parts and WMI does not assume, or authorize anyone to assume for them, any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.

WMI assumes no responsibility for incidental, consequential or other damages including, but not limited to, expense for gasoline, expense of delivering the mower to an Authorized WMI Service Dealer and expense of returning it to the Owner, damage by fire, mechanic's travel time, telephone charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the power equipment, loss of time or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This Warranty applies to all WMI mowers sold in the United States of America and Canada.

For the location of the Authorized WMI Service Dealer nearest you or other information, such as, Parts Lists and Owner's Manuals visit our website at: www.wrightmfg.com

Wright Manufacturing, Inc.
4600-X Wedgewood Blvd.
Frederick, MD 21703

FEDERAL AND CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The United States Environmental Protection Agency (EPA), California Air Resources Board (CARB) and Wright Manufacturing, Inc. (WMI) are pleased to explain the evaporative emission control system (EECS) warranty on your 2012 - 2013 commercial mower. In the United States, new equipment that use small off-road engines must be designed, built and equipped to meet the Federal's stringent evaporative emissions standards. In California, new equipment that use small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. WMI must warrant the EECS on your commercial mower for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your equipment.

Your EECS may include parts such as the carburetor, fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated emission-related components.
Where a warrantable condition exists, WMI will repair your commercial mower at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

This evaporative emission control system is warranted for two years. If any evaporative emission-related part on your equipment is defective, the part will be repaired or replaced by WMI.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the commercial mower owner, you are responsible for performance of the required maintenance listed in your owner's manual. WMI recommends that you retain all receipts covering maintenance on your commercial mower but WMI cannot deny warranty solely for the lack of receipts.

- As the commercial mower owner, you should however be aware that WMI may deny you warranty coverage if your commercial mower or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.

- You are responsible for presenting your commercial mower to WMI's distribution center or service center as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have a question regarding your warranty coverage, you should contact WMI's warranty claims department at (301) 360-9810.

GENERAL EMISSIONS WARRANTY COVERAGE:

WMI warrants to the ultimate purchaser and each subsequent purchaser that the commercial mower is:

Designed, built and equipped so as to conform with all applicable regulations; and

Free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to that part as described in WMI's application for certification.

The warranty period begins on the date the commercial mower is delivered to an ultimate purchaser or first placed into service. The warranty period is two years.
Subject to certain conditions and exclusions as stated below, the warranty on emission-related parts is as follows:

(1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions supplied, is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by WMI according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period.

(2) Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.

(3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions supplied is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by WMI according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.

(4) Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station at no charge to the owner.

(5) Notwithstanding the provisions herein, warranty services or repairs will be provided at all of our distribution centers that are franchised to service the subject engines or equipment.

(6) The commercial mower owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station.

(7) WMI is liable for damages to other engine or equipment components proximately caused by a failure under warranty of any warranted part.

(8) Throughout the commercial mower warranty period stated above, WMI will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

(9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of WMI.

(10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claims. WMI will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

WARRANTED PARTS:

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if WMI demonstrates that the commercial mower has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. The following emission warranty parts listed below are covered:

(1) Fuel Tank

(2) Fuel Cap

(3) Fuel Valve

(4) Fuel Line

(5) Fuel Line Fittings

(6) Fuel Line Clamps

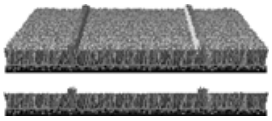
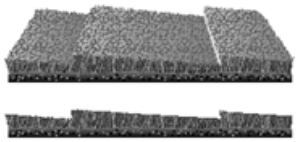
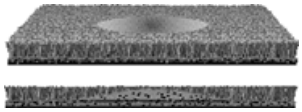
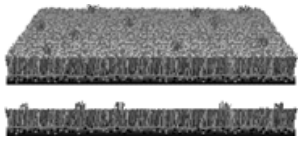
(7) Vapor Hoses

(8) Carbon Canister

(9) Carbon Canister Mounting Brackets

(10) Carburetor Purge Port Connector

Cut Quality and Mowing Tips

Problem	Description	Possible Cause	Solution
Streaking	Streaking is when strips of uncut grass are left behind.	Blades are not sharp	Sharpen blades
		Blades are worn down too far	Replace blades
		Engine RPM is too low	Mow at full throttle
		GROUND SPEED IS TOO FAST	SLOW DOWN
		Deck is plugged with grass	Clean deck
Stepped Cutting	Stepped cutting is sharp ridges left in the lawn surface. Stepped cutting is ussually caused by deck damage or misadjustment, or blade damage	Deck is not leveled correctly	Level the deck
		Tires are not properly installed/inflated	Check and inflate tires
		Blades are damaged	Replace blades
		Deck shell is damaged	Repair or replace deck
		Spindle is bent or loose	Repair or replace spindle
		Blades are installed incorrectly	Reinstall the blades correctly
Scalping	Scalping is when the deck comes close to or hits the ground. Scalping can be caused by the deck is misadjusted, uneveness in the lawn, or by deck bounce because ground	Lawn is uneven or bumpy	Roll or level the lawn
		Deck cutting hieght is set too low	Raise cutting height
		Deck is not leveled correctly	Level the deck
		Tire pressure is uneven	Check and inflate tires
Stringers	Stringers are sparse patches of uncut grass left behind the mower.	Blades are not sharp or are nicked	Sharpen blades
		Blades are worn down too far	Replace blades
		Engine RPM is too low	Mow at full throttle
		GROUND SPEED IS TOO FAST	SLOW DOWN
		Deck is plugged with grass	Clean deck

Recommended Mowing Heights		
Grass	**Minimum Height**	**Maximum Height**
Tall Fescue	1 1/2"	3"
Kentucky Bluegrass	1 1/2"	2 1/2"
Bahia Grass	2"	3"
Bermuda Grass	1/2"	1"
St. Augustine Grass	1"	3"
Zoysia Grass	1/2"	1"

Mowing Tips
Always mow at full throttle
Check deck pitch, front blade tip MUST be 1/4" - 3/8" lower than the back of the blade tip.
Cut 1/3 of the grass blade, cutting more is not recommended unless grass is sparse
Use a slower ground speed when grass is wet and lush or when using a mulch kit.
Clean the under side of the cutter deck after each use. Grass build up WILL eventually effect cut quality.

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