

# Rear-Engine Rider Owner/Operator Manual

Models 927060 - 1028 927062 - 1232 927064 - 1440





Transfer model & serial number label from product registration here. Coller l'autocollant du modèle et du numéro de série dans cet encadré.

Transferir aquí la etiqueta del modelo y número de serie del registro del producto.

02777600E 5/03 Supersedes 02777600, A–D Printed in USA

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## INTRODUCTION

#### THE MANUAL

Before operation of unit, carefully and completely read your manuals. The contents will provide you with an understanding of safety instructions and controls during normal operation and maintenance.

All reference to left, right, front, or rear are given from operator seated in operation position and facing the direction of forward travel.

### MODEL AND SERIAL NUMBERS

When ordering replacement parts or making service inquiries, know the Model and Serial numbers of your unit and engine.

Numbers are located on the product registration form in the unit literature package. They are printed on a serial number label, located on the frame of your unit.

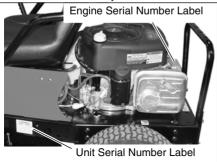


Figure 1

OA0038

- Record Unit Model and Serial numbers here.
- Record Engine Model and Serial numbers here.

### **PRODUCT REGISTRATION**

The Gravely dealer must register the product at the time of purchase. Registering the product will help the company process warranty claims or contact you with the latest service information. All claims meeting requirements during the limited warranty period will be honored, whether or not the product registration card is returned. Keep a proof of purchase if you do not register your unit.

**Customer Note:** If the dealer does not register your product, please fill out, sign, and return the product registration card to Gravely or go to www.gravely.com.

#### UNAUTHORIZED REPLACEMENT PARTS

Use only Gravely replacement parts. The replacement of any part on this unit with anything other than a Gravely authorized replacement part may adversely affect the performance, durability, and safety of this unit and may void the warranty. Gravely disclaims liability for any claims or damages, whether warranty, property damage, personal injury or death arising out of the use of unauthorized replacement parts.



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

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### DELIVERY

**Customer Note:** If you have purchased this product without complete assembly and instruction by your retailer, it is your responsibility to:

 Read and understand all assembly instructions in this manual. If you do not understand or have difficulty following the instructions, contact your nearest Ariens Dealer for assistance.

**NOTE:** To locate your nearest Gravely Dealer, call 1-800-472-8359 or go to www.gravely.com on the internet.



**WARNING:** Improper assembly or adjustments can cause serious injury.

## Before attempting to operate your unit:

- 1. Make sure all assembly has been properly completed.
- 2. Understand all Safety Precautions provided in the manuals.

- 3. Review control functions and operation of the unit. Do not operate the unit unless all controls function as described in this manual.
- 4. Review recommended lubrication, maintenance and adjustments.
- 5. Review Limited Warranty Policy.
- Fill out a Product Registration Card and return the card to the Ariens Company or go to www.gravely.com.

#### DISCLAIMER

Gravely reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser.

The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

## SAFETY



**WARNING:** This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the safety instructions in the manuals and on decals could result in serious injury or death.

Slopes are a major factor related to loss-of-control and tip-over accidents. Operation on all slopes requires extra caution.

Tragic accidents can occur if the operator is not alert to the presence of children. Never assume that children will remain where you last saw them.

Gasoline is extremely flammable and the vapors are explosive, handle with care.

Disengage attachment, stop unit and engine, remove key, engage parking brake, and allow moving parts to stop before leaving operator's position.

### SAFETY ALERTS



Look for these symbols to point out important safety precautions. They mean:

- Attention!
  - Personal Safety Is Involved!
  - Become Alert!
  - Obey The Message!

The safety alert symbol is used in decals and with this manual. Understand the safety message. It contains important information about personal safety.



DANGER: IMMINENTLY HAZARDOUS SITUATION! If not avoided, WILL RESULT in death or serious injury.



WARNING: POTENTIALLY HAZARDOUS SITUATION! If not avoided, COULD RESULT in death or serious injury.



CAUTION: POTENTIALLY HAZARDOUS SITUATION! If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.

#### NOTATIONS

**NOTE:** General reference information for proper operation and maintenance practices.

**IMPORTANT:** Specific procedures or information required to prevent damage to unit or attachment.

# SAFETY DECALS AND LOCATIONS

ALWAYS replace missing or damaged Safety Decals. Refer to figure 2 for Safety Decal locations.



#### 1. Danger!



Read the operator's manual.



Keep children and others away from unit while operating.



Never direct discharge toward other people. Thrown objects can cause injury.



Look down and behind before and while backing.



<sup>5</sup> Never carry children.



OL1806



Go up and down slopes, not across.

- If machine stops going uphill, stop blade and back down slowly.
- Avoid sudden turns.
- Keep safety devices (guards, shields, switches, etc.) in place and working.
- Check interlock system per manual before use.
- Understand location and function of all controls.
- Never allow operation by untrained persons.
- Disengage PTO, stop unit and engine, set parking brake, and remove key before making any inspections, repairs, etc.

#### 2. Hot Surfaces!



DO NOT touch parts which are hot from operation. ALWAYS allow parts to cool.

#### 3. Danger!



Always keep feet and hands away from rotating parts.



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Always stand clear of discharge area. Do not direct discharge toward other people.



Keep people away from unit while operating.



Shut off engine, remove key, and read manual before you adjust or repair unit.



NO STEP! Always keep feet away from rotating parts.

#### 4. Warning!



Always stand clear of discharge area

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Do not operate mower unless guards are in operating position or bagger is attached.

#### 5. Caution!

- · Maximum Tongue weight: 30 lbs.
- Maximum Trailer weight: 100 lbs.
- Do not use hitch with bagger attached.
- Do not use on steep hills or slopes.
- Do not park on hills when trailer is attached.
- -Do not use with any ground engaging equipment.



Do not tip unit on end.

### SAFETY BUI ES

If unit is to be used by someone other than original purchaser: loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

Read, understand, and follow all safety practices in Owner/Operator Manual before assembling, using or working on this mower.

ALWAYS remove key from ignition and wire from spark plug before assembly, or working on this unit.

Inspect unit before each use for: missing or damaged decals and shields, correctly operating safety interlock system, and deterioration of grass catchers. Replace or repair as needed.

AI WAYS check overhead and side clearances carefully before operation. ALWAYS be aware of traffic when crossing or operating along streets or curbs.

Keep children, people, and pets away. Be alert and shut off unit if anyone enters work area. Keep children under watchful care of a responsible adult.

NEVER allow children to operate or play on or near unit.

Keep area of operation clear of all toys, and debris. Thrown objects can cause injury.

Stav alert for hidden hazards, holes, and ruts,

Avoid uneven or rough terrain. DO NOT operate near drop-offs, ditches, or embankments. Unit can suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Dust, fog, etc. can reduce vision and cause an accident. Operate unit only when there is good visibility and light.

Data indicates that operators, age 60 and above, are involved in a larger percentage of riding mower related injuries. These operators should evaluate their ability to operate the riding mower safely enough to protect themselves and others from serious injury.

Only trained adults may operate unit. Training includes being familiar with controls and actual operation.

NEVER operate unit after or during the use of medication, drugs or alcohol,

NEVER allow anyone to operate this unit when their alertness or coordination is impaired.

Wear adequate safety gear, sturdy shoes, and protective aloves.

DO NOT wear loose clothing or jewelry and tie back hair that may get caught in rotating parts. Protect eves, face and head from objects that may be thrown from unit. Wear appropriate hearing protection. Always wear safety goggles or safety glasses with side shields when operating mower.

Avoid sharp edges. Sharp edges can cut. Moving parts can cut off fingers or a hand. ALWAYS keep hands and feet away from all rotating parts during operation. Rotating parts can cut off body parts.

ALWAYS keep hands away from all pinch points.

DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust or service.

NEVER place your hands or any part of your body or clothing inside or near any moving part while unit is running.

NEVER direct discharge towards persons or property. Thrown objects may ricochet back towards operator. ALWAYS stand clear of the discharge area.

ALWAYS disengage attachment, stop unit and engine, remove key, engage parking brake, and allow moving parts to stop before leaving operator's position.

Use extreme caution on gravel surfaces.

Disengage PTO when attachment is not in use and when crossing gravel surfaces.

DO NOT operate unit if safety interlock system is damaged or disabled. Check safety interlock before each use.

ALWAYS remove key to prevent unauthorized use.

DO NOT operate at too fast a rate. Slow down before turning.

Stop engine before removing grass catcher or unclogging chute.

DO NOT mow on wet grass. Reduced traction could cause sliding.

DO NOT try to stabilize the machine by putting your foot on the ground.

Know the weight of loads. Limit loads to those you can safely control and the unit can safely handle.

ALWAYS keep protective structures, guards and panels in good repair, in place and securely fastened.

Do not operate without either entire grass catcher or the discharge guard in place.

DO NOT operate in reverse unless absolutely necessary. ALWAYS look down and behind before and while backing; especially for children.

Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability when using attachments.

NEVER carry passengers-especially children-even with blades off.

Use extra care when approaching blind corners or objects that may obscure vision of hidden obstacles and children.

If you cannot back up a slope or you feel uneasy on it, do not mow it.

Mow up and down slopes, not across them. Use slow speed on any slope. Tires may lose traction on slopes even though the brakes are functioning properly. Keep all movements on the slope *slow* and *gradual*. DO NOT make sudden changes in speed or direction.

Use extra care while operating machines with grass catcher or other attachments. They can affect stability of the machine.

Avoid starting, stopping, or turning on a slope. If tires lose traction, disengage the blades and proceed slowly *straight* down the slope.

DO NOT operate on slopes over 10°.

DO NOT park on slopes unless necessary. If unit is parked on a slope, ALWAYS chock or block wheels and set parking brake.

DO NOT disengage or bypass transmission and coast downhill.

Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.

Follow the manufacturer's recommendations for weight limits for towed equipment and towing on slopes.

NEVER allow children or others in or on towed equipment.

On slopes, the weight of the towed equipment may cause loss of traction and loss of control.

Travel slowly and allow extra distance to stop.

Use extra care when loading or unloading unit onto trailer or truck.

Secure unit chassis to transport vehicle. NEVER secure from rods or linkages that could be damaged.

DO NOT transport machine while engine is running.

Keep unit free of grass clippings, leaves, and other debris. Clean up oil or fuel spills.

This product is equipped with an internal combustion type engine. DO NOT use unit on or near any unimproved, forest-covered or brush covered land unless exhaust system is equipped with a spark arrester meeting applicable local, state or federal laws. A spark arrester, if it is used, must be maintained in effective working order by operator.

Fuel is highly flammable and its vapors are explosive. Handle with care. Use an approved fuel container.

NO smoking, NO sparks, NO flames. ALWAYS allow engine to cool before servicing.

NEVER fill fuel tank when engine is running or hot from operation.

NEVER fill or drain fuel tank indoors.

NEVER overfill fuel tank.

Replace fuel cap securely and clean up spilled fuel.

NEVER fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.

When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.

Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.

If fuel is spilled on clothing, change clothing immediately.

Avoid Electric Shock. Objects contacting both battery terminals at the same time may result in injury and unit damage. DO NOT reverse battery connections.

Explosive Gases from battery can cause death or serious injury. Poisonous battery fluid contains sulfuric acid and its contact with skin, eyes or clothing can cause severe chemical burns.

NO flames, NO sparks, NO smoking near battery.

ALWAYS wear safety glasses and protective gear near battery.

DO NOT TIP battery beyond a 45  $^{\circ}$  angle in any direction.

ALWAYS keep batteries out of reach of children.

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

Reverse connections may result in sparks which can cause serious injury. Always connect positive (+) lead of charger to positive (+) terminal, and negative (-) lead to negative (-) terminal.

ALWAYS disconnect negative (-) cable FIRST and positive (+) cable SECOND. ALWAYS connect positive (+) cable FIRST, and negative (-) cable SECOND. A frozen battery can explode and result in death or serious injury. DO NOT charge or jump start a battery containing frozen fluid. Thaw the battery before putting on a charger or jump starting.

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened. NEVER modify or remove safety devices.

DO NOT change engine governor settings or over-speed engine.

Fumes from engine exhaust can cause injury or death. DO NOT run engine in an enclosed area. Always provide good ventilation.

ALWAYS maintain unit in safe operating condition. Damaged or worn out muffler can cause fire or explosion.

Stop and inspect equipment if you strike an object or if there is an unusual vibration. Repair, if necessary, before restarting. Never make adjustments or repairs with the engine running.

Mower blades are sharp and can cut you. Wrap the blade(s) or wear gloves, and use extra caution when servicing them. NEVER weld or straighten mower blades.

Rotation of one blade may cause rotation of the other blades.

Check brake operation frequently. Adjust and service as required.

Keep all hardware properly tightened.

Stored energy in springs can cause injury.

Maintain or replace safety and instruction labels, as necessary.

Never store the machine or fuel container inside a building where there is an open flame, such as a water heater.

Allow engine to cool completely before storing in closed area or covering unit.

For extended storage, clean unit thoroughly. See Engine Manual for proper storage.

Use only attachments or accessories designed for your unit.

Check attachment components frequently. If worn or damaged, replace with manufacturer's recommended parts.

## ASSEMBLY



**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

#### **TOOLS REQUIRED**

- Adjustable wrench
- Petroleum jelly or dielectric grease.

#### **UNPACK UNIT**

Remove unit and all other components from the shipping container. Engage transmission bypass lever (see *Moving The Unit Manually* on page 11). Push unit from container onto a level surface. Disengage transmission bypass lever.

#### **FIRST TIME USE**

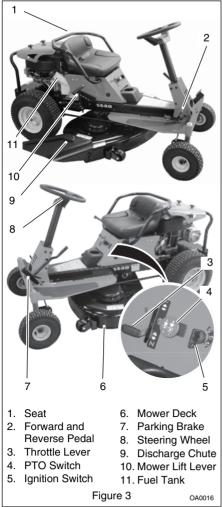
- 1. Install steering wheel.
- 2. Connect negative battery cable to battery. See *Battery Removal and Installation* on page 19 and perform step 1 in the removal section and perform steps 3, 4, and 6 in the installation section.
- 3. Check oil (see *Check Engine Oil* in *Maintenance Schedule* on page 12).
- 4. Check tire pressure (see *Specifications* on page 25).
- 5. Fill fuel tank (see *Filling Fuel Tank* on page 10).
- 6. Adjust seat (see *Seat Adjustment* on page 11).
- 7. Check safety interlock system (see Safety Interlock System on page 9).
- Check level and pitch of mower deck (see Leveling Mower Deck and Adjusting Mower Deck Pitch on page 15 and Adjusting Mower Deck Pitch on page 16).
- 9. Check function of all controls (see *Operation* on page 9).

## OPERATION



**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

#### CONTROLS AND FEATURES (FIGURE 3)



#### Safety Interlock System

**WARNING:** Safety interlock failure and improper operation of unit can result in death or serious injury. Check system before each use to make sure it is functioning properly.

Perform the following tests to ensure the safety interlock system is working properly. If the unit does not perform as stated, contact your Gravely dealer for repairs.

**NOTE:** With the parking brake engaged, the steering levers are locked in neutral.

Test	Forward and Reverse Pedal	PTO	Parking Brake	Engine
1	Neutral	Off	Engaged	Starts
2	Forward	Off	Engaged	Doesn't Start
3	Reverse	Off	Engaged	Doesn't Start
4	Neutral	On	Engaged	Doesn't Start
5	Neutral	Off	Disengaged	Doesn't Start
6*	Forward	Off	Engaged	Shuts Off
7*	Reverse	Off	Engaged	Shuts Off
8*+	Neutral	On	Disengaged	Shuts Off
9*+	Neutral	Off	Disengaged	Shuts Off
10*+	Neutral	Off	Engaged	Runs
*Test with engine running.				

+Operator lifts off seat.

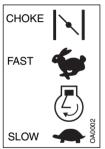
#### Ignition Switch (Item 5)



Operated by a removable key: 1. Stop

- 2. Run
- 3. Start

#### Throttle Lever (Item 3)



Move throttle lever to CHOKE to start a cold engine.

Move throttle lever to FAST position to increase engine speed.

Move throttle lever to SLOW position to decrease engine speed.

#### Forward and Reverse Pedal (Item 2)

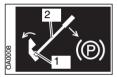


Press front of pedal down to move unit forward.

Press rear of pedal down to move unit backward.

Remove foot from pedal to return unit to neutral and to stop the unit.

#### Parking Brake (Item 7)



Fully depress parking brake (1) and engage parking brake lever (2).

#### PTO Switch (Item 4)



Engages and disengages the attachment. Pull switch to engage; push switch to disengage.

#### Mower Lift Lever (Item 10)



Raises and lowers the mower deck. See *Specifications* on page 25 for height adjustments.

#### FILLING FUEL TANK

- 1. Clean fuel cap and surrounding area to prevent dust, dirt, and debris from entering fuel tank.
- 2. Remove fuel cap.

**IMPORTANT:** See Engine Manual for correct type and grade of fuel.

- 3. Fill fuel tank to 1/2 in. (1.3 cm) below bottom of filler neck. See *Specifications* on page 25 for fuel tank capacity.
- 4. Replace fuel cap

#### STOPPING IN AN EMERGENCY

Remove foot from forward and reverse pedal and press on parking brake.

#### STARTING AND SHUTTING OFF ENGINE

#### **Starting Engine**

**NOTE:** PTO must be disengaged prior to starting engine.

1. Set throttle lever to CHOKE for a cold engine. Set throttle lever at 1/3 throttle for a warm engine.

**IMPORTANT:** DO NOT operate starter for more than 15 seconds per minute as damage can occur.

- 2. Depress brake pedal.
- 3. Turn ignition key to START position and release once engine has started.
- 4. After engine starts, set throttle lever to FAST position.

**IMPORTANT:** Let engine warm up several seconds to several minutes depending on outside temperature.

**NOTE:** When engine is running, PTO belt is turning electric clutch on mower deck. The electric clutch WILL NOT engage mower blades until PTO switch is engaged.

#### **Shutting Off Engine**

- 1. Stop unit.
- 2. Disengage PTO.
- 3. Set throttle lever to SLOW.
- 4. Set parking brake.
- 5. Turn ignition switch to OFF position and remove ignition key.

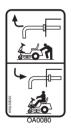
#### **OPERATING MOWER**

- 1. Start engine.
- 2. Set throttle lever FAST.
- 3. Engage PTO to start mower blades.
- 4. Use forward and reverse pedal to move unit.
- 5. Disengage PTO to stop mower blades.

### MOVING THE UNIT MANUALLY

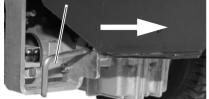


**WARNING:** DO NOT disengage or bypass transmission and coast downhill.

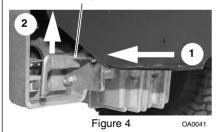


Disengage transmission bypass lever to drive unit and engage transmission bypass lever to push unit manually (figure 4).

Transmission Bypass Lever Disengaged to Drive Unit



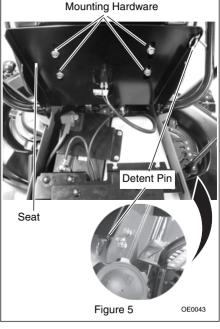
Transmission Bypass Lever Engaged to Push Unit Manually



#### SEAT ADJUSTMENT

- 1. Remove detent pin from unit (figure 5).
- 2. Tip seat forward.
- 3. Loosen mounting hardware and slide seat forward or backward to desired position. Tighten mounting hardware.

4. Put seat down and install detent pin.



#### TRANSPORTING UNIT

ALWAYS turn engine off when transporting on truck or trailer. Tie unit down securely. Do not tie down by linkages, guards, cables or other parts that may be damaged.

## **MAINTENANCE SCHEDULE**



**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

**IMPORTANT:** Proper maintenance can prolong the life of unit. The following chart

shows the recommended service schedule. Refer to the maintenance instructions in the Engine Manual for additional information. **IMPORTANT:** Do not place unit on end.

**NOTE:** Use figure 6 to locate items called out in the maintenance schedule.

2. A	ooling System ir Filter uel Filter	1 2 5 4 4. Spark Plug 5. Muffler 6. Oil Drain Petcock 7 Oil Strippediate				
		7. Oil Fill/Dipstick Figure 6				
Interval	Task	Action				
	Check Safety Interlock System	WARNING: Safety interlock system failure and improper operation of unit can result in death or serious injury. Test this system each time the unit is operated. If this system does not function as described, do not operate until repairs are made (see <i>Safety Interlock System</i> on page 9).				
Check Parking Brake Brak Brak						
Each Use	Clean Unit	Clean engine, battery, seat, mower deck, etc. of all dirt an debris. Do not use solvents, hard cleaners, or abrasives. <b>NOTE:</b> Protect painted surfaces with automotive type way				
	Check Tires	See <i>Specifications</i> on page 25 for correct tire pressure.				
	Check Mower Blades	Check for worn or damaged blade(s) (see <i>Sharpening Mower Blade</i> on page 18).				
	Check Engine Oil	Use oil fill/dipstick (item 7) to check engine oil level. Add engine oil if needed, refer to Engine Manual for detailed instructions.				

	Check Battery				
	Check Ballery	Keep battery and battery terminals clean (see <i>Cleaning Battery and Battery Cables</i> on page 20).			
25 Hours or Every Season	Lubricate Unit	Apply grease to two front wheel zerks, steering gear, and pinion.	Zerk Steering Gear and Pinion Zerk		
	Clean Air Filter <sup>1</sup>	Clean air filter (item 2). Refe instructions.	er to Engine Manual for detailed		
	Change Engine Oil <sup>2</sup>	Drain engine oil by opening to Engine Manual for detaile	oil drain petcock (item 6). Refer ed instructions.		
50 Hours or Every Season	Check Fasteners	Check mower blade mounting hardware and all other fasteners. Replace fasteners that are missing or damaged. Tighten all nuts and bolts to the correct torque value.			
	Inspect Muffler and Spark Arrestor	Replace muffler (item 5) and spark arrestor (if equipped) if corroded. Contact your Gravely Dealer.			
	Replace Spark Plug	Replace spark plug (item 4). Refer to Engine Manual for detailed instructions.			
	Replace Fuel Filter	Replace fuel filter (item 3). Refer to Engine Manual for detailed instructions.			
100 Hours	Clean Cooling System <sup>1</sup>	Clean cooling system (item 1). Refer to Engine Manual for detailed instructions.			
or Every Season	Check All Belts	<ul> <li>Replace worn or deteriorated belts.</li> <li>Check hydrostatic belt (see <i>Hydrostatic Belt Replacement</i> on page 21).</li> <li>Check PTO belt (see <i>PTO Belt Replacement</i> on page 21).</li> <li>Check mower belt (see <i>Mower Belt Replacement (927064)</i> on page 22).</li> </ul>			

<sup>2</sup> Change after first 5 to 8 hours of use. Change every 25 hours when operating under heavy loads or in high temperatures.

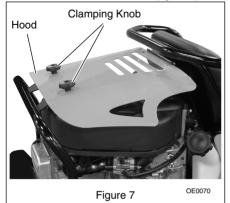
## SERVICE AND ADJUSTMENTS



**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

# REMOVING AND INSTALLING THE HOOD (927064)

Two clamping knobs hold the hood to the unit. Turn clamping knobs counterclockwise to remove and clockwise to install (figure 7).



# REMOVE AND INSTALL MOWER DECK

#### (Figure 8 and 9)

#### Remove

1. Remove PTO belt (see *PTO Belt Replacement* on page 21).

- Disconnect electric clutch connector (item 5).
- 3. Disconnect guide arms (item 1) from unit.

**NOTE:** Perform step 4 for 28- and 32-inch mower decks. Perform step 5 for 40-inch mower decks.

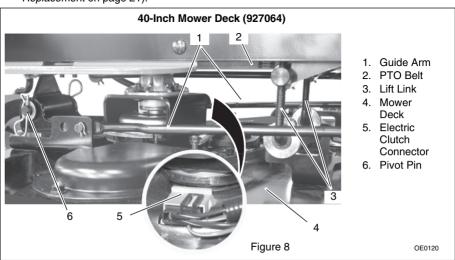
- 4. Remove three lift links (item 3) from mower deck (item 4) and unit (figure 9).
- 5. Remove pivot pin (item 6) and two lift links (item 3) from mower deck (item 4) and unit (figure 8).
- 6. Slide mower deck (item 4) out from under unit.

#### Install

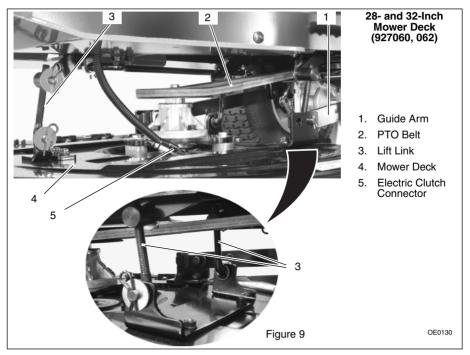
1. Slide mower deck (item 4) under unit.

**NOTE:** Perform step 2 for 28- and 32-inch mower decks. Perform step 3 for 40-inch mower decks.

- 2. Install three lift links (item 3) on mower deck (item 4) and unit (figure 9).
- 3. Install pivot pin (item 6) and two lift links (item 3) from mower deck (item 4) and unit (figure 8).
- 4. Install guide arms (item 1) on unit.
- 5. Connect electric clutch connector (item 5).
- 6. Install PTO belt (see PTO Belt Replacement on page 21).



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#### LEVELING MOWER DECK AND ADJUSTING MOWER DECK PITCH

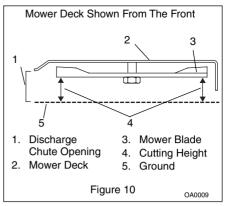
Adjust on a level surface, with tires inflated to correct air pressure (see *Specifications* on page 25), and mower lift lever in the middle position.

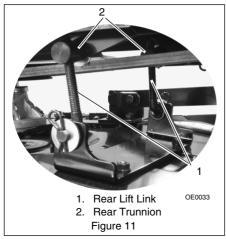
#### Leveling Mower Deck

**NOTE:** Cutting height should be within 1/4 in. (6.35 mm) on each side of mower deck (figure 10).

- With mower blade(s) (item 3) in line with discharge chute opening (item 1), measure distance from bottom of mower blade(s) to the ground on each side of mower deck.
- 2. Perform steps 3 through 5 if the measurement is too high or too low on either side of mower deck.
- 3. Remove rear lift link (item 1) and rear trunnion (item 2) from unit (figure 11).
  - TO RAISE the mower deck, turn rear trunnion (item 2) clockwise several turns.
  - TO LOWER the mower deck, turn rear trunnion (item 2) counterclockwise several turns.
- 4. Install rear lift link (item 1) and rear trunnion (item 2) on unit.

- 5. Check that the mower deck is level.
  - If mower deck is not level, repeat steps 1 through 4.
  - If mower deck is level, then adjust mower deck pitch.

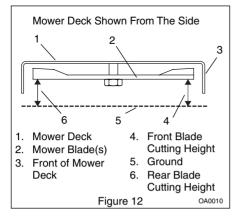




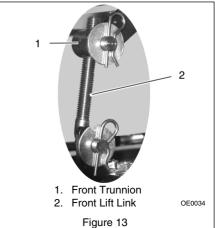
#### **Adjusting Mower Deck Pitch**

**NOTE:** The front blade cutting height (item 4) should be 1/16 - 3/8 in. (1.59 - 9.53 mm) lower than the rear blade cutting height (item 6) (figure 12).

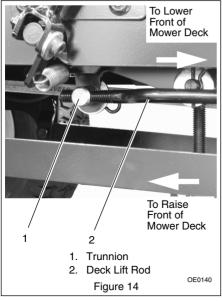
- With the end of the mower blade(s) facing forward, measure distance from bottom of mower blade(s) to the ground at front of mower deck.
- 2. Turn mower blade(s) 180 degrees and measure distance from bottom of mower blade(s) to the ground at rear of mower deck.
- 3. Perform steps 4 through 6 if the measurement is too high or too low.



**NOTE:** Perform steps 4 through 6 for 28- and 32-inch mower decks. Go to step 7 for 40-inch mower decks.



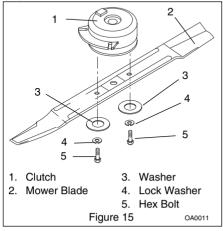
- 4. Remove front trunnion (item 1) and front lift link (item 2) from unit (figure 13).
  - TO RAISE front of mower deck, turn front trunnion (item 1) clockwise several turns.
  - TO LOWER front of mower deck, turn front trunnion (item 1) counterclockwise several turns.
- 5. Install front trunnion (item 1) and front lift link (item 2) on unit.
- 6. Check mower deck pitch.
  - If mower blade pitch is not correct, go to step 7.
  - If mower deck pitch is correct, the adjustment is complete.
- 7. Adjust deck lift rod (item 2) (figure 14):
  - a. Remove trunnion (item 1) from unit.
  - b. TO RAISE front of mower deck, turn trunnion (item 1) counterclockwise several turns.
  - c. TO LOWER front of mower deck, turn trunnion (item 1) clockwise several turns.
  - d. Install trunnion (item 1) on unit.
- 8. Check mower deck pitch.
  - If mower blade pitch is not correct, repeat steps 4 through 6.
  - If mower deck pitch is correct, the adjustment is complete.



#### MOWER BLADE REPLACEMENT

**CAUTION:** Mower blades are sharp and can cut you. Wrap the blades or wear gloves, and use extra caution when servicing them.

## 28-Inch and 32-Inch Mower Decks (Figure 15)



#### Remove

- 1. Place mower lift lever in the highest position.
- 2. Block mower blade (item 2) to prevent rotation.

3. Remove mower blade (item 2) from clutch (item 1).

#### Install

- 1. Install mower blade (item 2) on clutch (item 1).
- Torque hex bolts (item 5) to 45-55 lbf-ft (61-75 N•m).

#### 40-Inch Mower Deck (Figure 16)

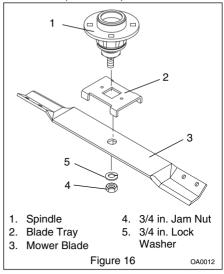
**NOTE:** The 40-inch mower deck has two mower blades.

#### Remove

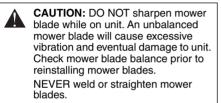
- 1. Place mower lift lever in the highest position.
- 2. Block mower blades (item 3) to prevent rotation.
- 3. Remove mower blades (item 3) and blade trays (item 2) from spindles (item 1).

#### Install

- 1. Install blade trays (item 2) and mower blades (item 3) on spindles (item 1).
- Torque 3/4 in. jam nuts (item 4) to 48– 72 lbf-ft (65–97 N•m).



### SHARPENING MOWER BLADE



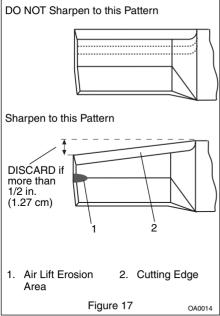
1. Remove mower blade from unit (see *Mower Blade Replacement* on page 17).

Gravely recommends having mower blades sharpened by a professional. Contact your Gravely dealer.

Discard mower blade if (figure 17):

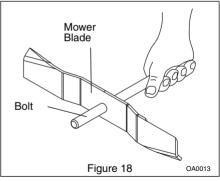
- more than 1/2 in. (1.27 cm) of metal is removed.
- air lift erosion area (item 1) is eroded.
- · mower blade is bent or broken.

Do not change angle of cutting edge (item 2) or round the corner at the end of mower blade.



- 2. Sharpen mower blade by removing an equal amount of material from each end of mower blade.
- Check mower blade balance by sliding mower blade on an unthreaded bolt. If blade is balanced, it should remain in a horizontal position. If either end of mower blade moves downward, sharpen the heavy end until mower blade is balanced (figure 18).

4. Install mower blade on unit (see *Mower Blade Replacement* on page 17).

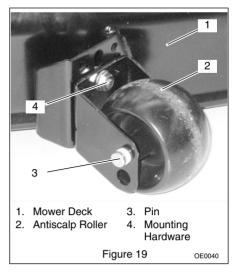


#### ANTISCALP ROLLER ADJUSTMENT (927064)

**IMPORTANT:** Antiscalp rollers prevent lawn scalping; DO NOT use antiscalp rollers to set cutting height. Adjust all antiscalp rollers to same height.

**NOTE:** Adjust on a level surface, with the tires inflated to the correct air pressure (see *Specifications* on page 25).

- 1. Select cutting height.
- Adjust all antiscalp rollers (item 2) to within 1/2 in. (1.27 cm) of ground (figure 19).



### SERVICING THE BATTERY

**NOTE:** Unit comes equipped with a maintenance-free battery that requires no regular maintenance except cleaning terminals.



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

# Battery Removal and Installation (Figure 20)

#### Remove

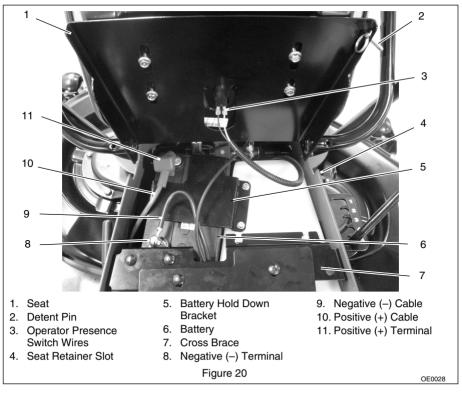
**NOTE:** Tag and mark wires prior to disconnecting.

- 1. Remove detent pin (item 2) and tip seat (item 1) forward.
- 2. Disconnect operator presence switch wires (item 3) and remove seat (item 1) from seat retainer slots (item 4).

- 3. Disconnect negative (-) cable (item 9) first then positive (+) cable (item 10).
- 4. Remove battery hold down bracket (item 5) and cross brace (item 7).
- 5. Remove battery (item 6) from unit.

#### Install

- 1. Install battery (item 6) on unit.
- 2. Install cross brace (item 7) and battery hold down bracket (item 5).
- 3. Connect positive (+) cable (item 10) first, than negative (-) cable (item 9).
- 4. Apply petroleum jelly or dielectric grease to battery cable ends and terminals.
- 5. Install seat (item 1), in seat retainer slots (item 4) and connect operator presence switch wires (item 3).
- 6. Put seat (item 1) down and install detent pin (item 2).



# Cleaning Battery and Battery Cables (Figure 20)

- 1. Remove battery from unit (see *Battery Removal and Installation* on page 19).
- Clean or service battery away from unit. Remove corrosion from battery terminals and cable connections with wire brush, then wash with a weak baking soda solution.
- 3. Install battery on unit (see *Battery Removal and Installation* on page 19).

## Charging the Battery (Figure 20)



WARNING: FROZEN BATTERIES CAN EXPLODE and result in death or serious injury. DO NOT charge a frozen battery. Let the battery thaw before charging.

Follow First Aid directions for contact with battery fluid.

- External Contact: Flush with water.
- Eyes: Flush with water for at least 15 minutes and get medical attention immediately!
- Internal Contact: Drink large quantities of water. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately!
- In case of internal contact, DO NOT induce vomiting!

**IMPORTANT:** DO NOT fast charge. Charging at a higher rate will damage or destroy battery. **IMPORTANT:** ALWAYS follow information provided on battery and battery charger. Contact battery and battery charger manufacturers' for detailed instructions.

- 1. Remove battery from unit (see *Battery Removal and Installation* on page 19).
- 2. Place battery on bench or other wellventilated area.
- Connect positive (+) lead of charger to positive (+) terminal (item 11), and negative (-) lead of charger to negative (-) terminal (item 8).
- Charge battery according to battery charger and battery manufacturers' instructions.
- 5. Install battery on unit (see *Battery Removal and Installation* on page 19).

## Jump Starting the Battery

#### (Figure 20)

**IMPORTANT:** The unit used for jump starting should have a 12 volt battery with at least 500 cold cranking amperes, and a negatively grounded system.

**IMPORTANT:** Ensure battery is not frozen. If battery is frozen, remove battery from unit and allow it to thaw before charging.

- Connect positive (+) jumper cable to positive (+) terminal (item 11) of discharged battery.
- Connect the other end of positive (+) jumper cable to positive (+) terminal of booster battery.
- Connect negative (–) jumper cable to negative (–) terminal of the booster battery.
- 4. Connect the other end of negative (–) jumper cable to engine of unit with discharged battery.



**WARNING:** Make sure cables are clear of any moving engine parts before starting engine.

**NOTE:** If engine will not start, unit or battery may need service.

- 5. Start engine.
- 6. After engine starts, leave jumper cables connected for one to two minutes.
- 7. Disconnect jumper cables in reverse order of installation.
- 8. Operate unit as normal to charge battery.

### FRONT WHEEL ALIGNMENT

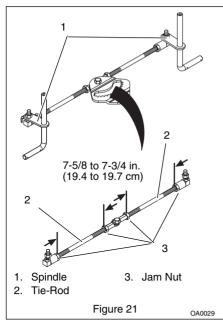
#### Check (Figure 21)

**NOTE:** The distance between jam nuts (item 3) should be 7-5/8 to 7-3/4 in. (19.4 to 19.7 cm).

- 1. Measure the distance between jam nuts (item 3).
- 2. Adjust if needed.

#### Adjust (Figure 21)

- 1. Remove tie-rod(s) (item 2) from spindle(s) (item 1).
- Loosen jam nut(s) (item 3) and turn tie-rod(s) (item 2) clockwise or counterclockwise until the distance between the jam nuts (item 3) is within specifications.
- 3. Tighten jam nuts (item 3).
- 4. Install tie-rod(s) (item 2) on spindle(s) (item 1).



#### HYDROSTATIC BELT REPLACEMENT

#### Remove (Figure 22)

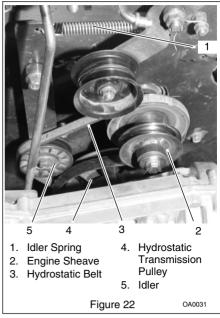
1. Remove PTO belt (see *PTO Belt Replacement* on page 21).

**CAUTION:** Use care when releasing idler spring tension. Keep body parts well away from idler when performing this operation.

- Push idler (item 5) towards the inside of the unit and remove hydrostatic belt (item 3) from idler (item 5).
- 3. Remove hydrostatic belt (item 3) from engine sheave (item 2) and hydrostatic transmission pulley (item 4).

#### Install

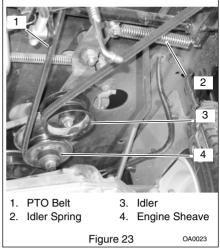
- 1. Install hydrostatic belt (item 3) on hydrostatic transmission pulley (item 4) and engine sheave (item 2).
- Push idler (item 5) towards the inside of the unit and place hydrostatic belt (item 3) on idler (item 5).
- Slowly release idler (item 5) until hydrostatic belt (item 3) rests firmly against idler (item 5).
- 4. Install PTO belt (see *PTO Belt Replacement* on page 21).



### PTO BELT REPLACEMENT

#### Remove (Figure 23)

Mower Deck Shown Removed For Clarity



1. Lower mower deck to the ground.

**CAUTION:** Use care when releasing idler spring tension. Keep body parts well away from idler when performing this operation.

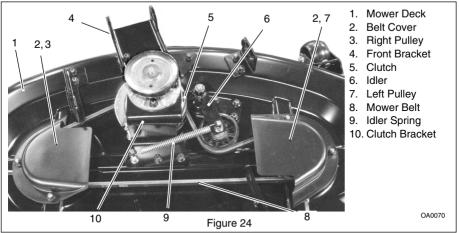
- 2. Pull idler (item 3) towards the outside of the unit and remove PTO belt (item 1) from idler (item 3).
- 3. Remove PTO belt (item 1) from mower deck pulley and engine sheave (item 4).

#### Install (Figure 23)

1. Install PTO belt (item 1) on engine sheave (item 4) and mower deck pulley.

#### **MOWER BELT REPLACEMENT (927064)**

- 2. Pull idler (item 3) towards the outside of the unit and place PTO belt (item 1) on idler (item 3).
- 3. Slowly release idler (item 3) until PTO belt (item 1) rests firmly against idler (item 3).



#### Remove (Figure 24)

- 1. Remove mower deck (see *Remove and Install Mower Deck* on page 14).
- 2. Remove two belt covers (item 2).

**CAUTION:** Use care when releasing idler spring tension. Keep body parts well away from idler when performing this operation.

- 3. Remove idler spring (item 9).
- 4. Remove front bracket (item 4) and clutch bracket (item 10).
- 5. Remove mower belt (item 8).

#### Install (Figure 24)

- 1. Install mower belt (item 8) on right pulley (item 3), idler (item 6), clutch (item 5), and left pulley (item 7).
- 2. Install clutch bracket (item 10) and front bracket (item 4).
- 3. Install idler spring (item 9).
- 4. Install two belt covers (item 2).
- 5. Install mower deck (see *Remove and Install Mower Deck* on page 14).

## STORAGE

#### **Short Term Storage**

**IMPORTANT:** NEVER clean unit with highpressure water or store unit outdoors.

Remove all dirt, grease, leaves, etc. Store in a clean dry area.

Inspect unit for signs of wear or damage. Ensure all fasteners are properly tightened.

#### Long Term Storage

Follow all instructions under *Short Term Storage.* 

Remove and fully charge battery. Store in a clean dry area.

Drain fuel from fuel tank.

Refer to Engine Manual for the proper engine storage procedures.

Touch up all scratched or chipped paint surfaces.

## TROUBLESHOOTING

PROBLEM		PROBABLE CAUSE		CORRECTION
	1.	Safety interlock system is not engaged or is faulty.	1.	Check safety interlock system (see Safety Interlock System on page 9).
	2.	Fuel tank empty.	2.	Fill fuel tank.
	3.	Discharged battery.	3.	Charge battery (see <i>Charging the Battery</i> on page 20).
Engine will not crank/start.	4.	Poor connection between battery and battery cables.	4.	Tighten battery cables and/or clean battery and battery cables (see <i>Cleaning Battery and Battery</i> <i>Cables</i> on page 20).
	5.	Spark plug wire loose or spark plug faulty.	5.	Connect spark plug wire or replace spark plug. Refer to Engine Manual for detailed instructions.
	6.	Faulty electrical system.	6.	Contact your Gravely Dealer.
	7.	Faulty engine.	7.	Contact your Gravely Dealer.
	1.	Choke engaged.	1.	Disengage choke.
Engine runs rough.	2.	Air filter plugged.	2.	Clean or replace air filter. Refer to Engine Manual for detailed instructions.
	З.	Faulty engine.	3.	Contact your Gravely Dealer.
Unit does not move with engine	1.	Transmission bypass lever is engaged.	1.	Disengage transmission bypass lever (see <i>Moving The Unit</i> <i>Manually</i> on page 11).
running when using forward and	2.	Faulty hydrostatic belt.	2.	Replace hydrostatic belt (see <i>Hydrostatic Belt Replacement</i> on page 21).
reverse pedal.	3.	Faulty transmission.	3.	Contact your Gravely Dealer.
	1.	Operator presence switch not depressed.	1.	Depress operator presence switch by sitting on seat.
	2.	Faulty operator presence switch.	2.	Contact your Gravely Dealer.
PTO or mower	3.	Electric clutch connector is loose.	3.	Connect electric clutch connector. See figure 9 on page 15 for connector location.
blade(s) does not engage or shuts off.	4.	Faulty PTO belt or a faulty mower belt on the 40-inch decks.	4.	Replace PTO belt (see <i>PTO Belt</i> <i>Replacement</i> on page 21) or replace mower belt on the 40-inch decks (see <i>Mower Belt</i> <i>Replacement (927064)</i> on page 22).
	5.	Faulty PTO switch, wires, connectors, or clutch.	5.	Contact your Gravely Dealer.
	1.	Engine oil level low.	1.	Add engine oil. Refer to Engine Manual for detailed instructions.
Engine overheats.	2.	Cooling system plugged.	2.	Clean cooling system. Refer to Engine Manual for detailed instructions.
	3.	Faulty engine.	3.	Contact your Gravely Dealer.

PROBLEM	PROBABLE CAUSE	CORRECTION		
Unit moves with engine	1. The parking brake needs adjustment.	1. Contact your Gravely Dealer.		
off and parking brake engaged.	2. Faulty parking brake.	2. Contact your Gravely Dealer.		
Poor cutting	<ol> <li>Mower deck not level or mower deck pitch is incorrect.</li> </ol>	<ol> <li>Level mower deck or adjust pitch (see Leveling Mower Deck and Adjusting Mower Deck Pitch on page 15).</li> </ol>		
quality.	2. Dull or faulty mower blades.	<ol> <li>Sharpen mower blades (see Sharpening Mower Blade on page 18) or replace mower blades (see Mower Blade Replacement on page 17).</li> </ol>		

SERVICE PARTS						
Be sure to always use genuine Gravely parts to keep your unit running like new.						
Part no.	Qty	Description				
01600600	1	28-inch mower blade				
02774500	1	32-inch mower blade				
03624700	1	40-inch mower blade				
NA	1	Battery, Sealed Maintenance Free UI – 330 (See Local Battery Supplier)				
07220500	1	Mower Belt (40-inch Decks)				
07242500	1	PTO Belt (927060)				
07242400	1	PTO Belt (927062)				
07242600	1	PTO Belt (927064)				
07211700	1	Hydrostatic Belt				

SPI	ECIFICATIO	NS			
Model Number	927060	927062	927064		
Description	1028	1440			
Engine Manufacturer	Briggs & Stratton				
Engine Power - hp (kW) @Max Governed Engaged RPM	9.5 (7) 9.5 (7) 13.5 (10)				
Max Governed Engaged RPM		3100			
Fuel Tank Capacity - gal. (L)		1.6 (6.06)			
Starter		Electric			
Transmission		Hydrostatic			
Speed: Forward Max mph (km/h) Reverse Max mph (km/h)	5.5 (8.85) 2.5 (4.02)				
Power Take-Off	Ele	ctric PTO Clutch/Br	rake		
Battery	12	Volt Maintenance F	ree		
Parking Brake	Internal H	ydrostatic Transmis	sion Brake		
Cutting Heights – in. (cm) – (may vary due to variations in tire diameters)	1 - 4 (2.5 - 10.2)				
Cutting width - in. (cm)	28 (71)	32 (81.3)	40 (102)		
Tire Pressure:Front - psi (kPa) Rear - psi (kPa)	24 (165) 12 (82.7)				
Tire Size: Front - in. (cm)	4 x 3.5 x 10 (10.2 x 8.84 x 25.4)	4.10 x 3.5 x 10 (10.4 x 8.84 x 25.4)	4.10 x 3.5 x 10 (10.4 x 8.84 x 25.4)		
Rear - in. (cm)	8 x 6.5 x 16 (20.3 x 16.5 x 40.6)	8 x 6.5 x 16 (20.3 x 16.5 x 40.6)	8 x 6.5 x 18 (20.3 x 16.5 x 45.7)		
Turning Radius - in. (cm)	12 (30.5)				
Weight - Ib (kg)	<u>390 (177)</u> 400 (181) 435 (197)				
Height - in. (cm)	38.7 (98.4) 40 (102)				
Length - in. (cm)	66 (168) 67 (170)				
Width - in. (cm)	33 (83.8) 37 (94)				
Max. Towing Capacity - lb (kg)	100 (45)				
Max. Tongue Weight - Ib (kg)	30 (13.6)				



Gravely Division of Ariens Company 655 West Ryan Street P.O. Box 157 Brillion, WI 54110-0157 920-756-2141 Fax 920-756-2407 www.gravely.com

## 2-Year Limited Warranty

#### GT and GLT Tractors, ZT Mower, PRO 21 Mower, String Trimmer, and Gravely at Home products

Gravely Division of Ariens Company (Gravely) warrants to the original purchaser that consumer products manufactured by Gravely will be free from defects in material and workmanship for a period of two (2) years after the date of purchase. Gravely will repair any defect in material or workmanship, and repair or replace any defective part, subject to the exceptions, exclusions, conditions and limitations set forth herein.

The two-year duration of this warranty applies only if the product is put to ordinary, reasonable, and usual personal, family, or household uses. If the product is put to any business, commercial, or industrial use, such as, but not limited to, commercial landscaping, mowing or snow removal services, or golf course or park maintenance, or agricultural or farmstead use, then the duration of this warranty is ninetly (90) days after the date of purchase, or one (1) year after the date of purchase for the Pro 21 Mower. If any product is rented or leased, then the duration of this warranty is ninety (90) days after date of purchase.

Genuine Gravely service parts and accessories not purchased with the product covered by this warranty, but which are later purchased and used with that product, are warranted to be free from defects in material and workmanship for a period of ninety (90) days after date of purchase, and Gravely will repair or replace any such part or accessory free of charge, except for labor, during that period.

#### This warranty is subject to the following exceptions, conditions, and limitations:

This warranty is valid only if the following conditions are met:

- The purchaser must perform maintenance and minor adjustments explained in the owner's manual.
- The purchaser must promptly notify Gravely or an authorized Gravely service representative of the need for warranty service.
- Returning the product registration card to Gravely will enable the company to contact the registrant with repair or replacement part information.

#### This warranty is subject to the following limitations:

- The purchaser must transport the product to and from the place of warranty repair.
- Warranty service must be performed by an authorized Gravely service representative. (To find an authorized Gravely service representative, contact Gravely at the website, number or address above.)
- Batteries are warranted for a period of twelve (12) months after date of purchase, on a prorated basis. For the first ninety (90) days of the warranty period, a defective battery will be replaced without charge. If the applicable warranty period is more than ninety (90) days, Gravely will cover the prorated cost of any defective battery, for up to twelve (12) months after date of purchase.

#### The following items are not covered by this warranty:

- Engines and engine accessories are covered only by the warranty made by the engine manufacturer, and are not covered by this warranty.
- If the product is equipped with a Peerless gearbox and/or transmission, the gearbox and/or transmission are covered only by the warranty made by Peerless, and are not covered by this warranty.
- If the product is equipped with a Hydro-Gear transmission and/or Hydro-Gear drive components, the Hydro-Gear transmission and/or drive components are covered only by the warranty made by Hydro-Gear, and are not covered by this warranty.
- Service work performed by, and parts installed by, someone other than an authorized Gravely service representative are not covered by this warranty.
- Parts that are not genuine Gravely service parts are not covered by this warranty.
- Shoes, runners, scraper blades, shear bolts, mower blades, mower vanes, trimmer line, headlights, light bulbs are not covered by this warranty.
- Any defect which is the result of misuse, alteration, improper assembly, improper adjustment, neglect, or accident is not covered by this warranty.
- Products which were not purchased in the United States, Puerto Rico, or Canada are not covered by this warranty. In all other countries, contact place of purchase.

#### LIMITATION OF REMEDY AND DAMAGES

Gravely's liability under this express warranty, and under any implied warranty that may exist, is limited to repair or replacement of any defective part. Gravely shall not be liable for incidental, special, or consequential damages (including lost profits). Some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

#### **DISCLAIMER OF FURTHER WARRANTY**

Gravely makes no warranty, express or implied, other than what is expressly made in this warranty. If the law of your state provides that an implied warranty of merchantability, or an implied warranty of fitness for particular purpose, or any other implied warranty, applies to Gravely, then any such implied warranty is limited to the duration of this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

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

Form: GCLW2-122002



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