FORM NO. 3318-414 GB Rev A

TORO®

MODEL NO. 30716—60001 & UP
MODEL NO. 30716TE—60001 & UP

OPERATOR'S MANUAL

GUARDIAN® 72" RECYCLER®

FOREWORD

The Guardian® 72” Recycler® Cutting Deck has advanced concepts in engineering, design and safety; and if maintained properly, will give excellent service.

Since this is a high-quality product, Toro is concerned about the future use of the machine and the safety of the user. Therefore, read this manual to familiarize yourself with proper operation and maintenance instructions. The major sections of the manual are:

Certain information in this manual is emphasized. DANGER, WARNING and CAUTION identify personal safety related information. IMPORTANT identifies mechanical information demanding special attention. Be sure to read this directive because it deals with the possibility of damaging a part or parts of the machine. NOTE identifies general information worthy of special attention.

Whenever you have questions or need service, contact your local authorized Toro Distributor. In addition to having a complete line of accessories and professional turf care service technicians, the distributor has a complete line of genuine TORO replacement parts to keep your machine operating properly. Keep your TORO all TORO. Buy genuine TORO parts and accessories.

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Safety

Training

1. Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.

2. Never allow children or people unfamiliar with these instructions to use the lawnmower. Local regulations may restrict the age of the operator.

3. Never mow while people, especially children, or pets are nearby.

4. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

5. Do not carry passengers.

6. All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:

- the need for care and concentration when working with ride-on machines;
- control of a ride on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are:
  - insufficient wheel grip;
  - being driven too fast;
  - inadequate braking;
  - the type of machine is unsuitable for its task;
  - lack of awareness of the effects of ground conditions, especially slopes;

Preparation

1. While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.

3. **WARNING—Petrol is highly flammable.**

- Store fuel in containers specifically designed for this purpose.
- Refuel outdoors only and do not smoke while refueling.
- Add fuel before starting the engine. Never remove the cap of the fuel tank or add petrol while the engine is running or when the engine is hot.
- If petrol is spilled, do not attempt to start the engine but move the machine away from the are of spillage and avoid creating any source of ignition until petrol vapors have dissipated.
- Replace all fuel tanks and container caps securely.

4. Replace faulty silencers.

5. Before using, always visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged blades and bolts in sets to preserve balance.

6. On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

2. Mow only in daylight or in good artificial light.

3. Before attempting to start the engine, disengage all blade attachment clutches and shift into neutral.

4. Do not use on slopes of more than:

- Never mow side hills over 5°
- Never mow uphill over 10°
- Never mow downhill over 15°

5. Remember there is no such thing as a “safe” slope.

Travel on grass slopes requires particular care. To guard against overturning:

- do not stop or start suddenly when going up or downhill;
- engage clutch slowly, always keep machine in gear, especially when travailing downhill;
- machine speeds should be kept low on slopes and during tight turns;
- stay alert for bumps and hollows and other hidden hazards;
- never mow across the face of the slope, unless the lawnmower is designed for this purpose.

6. Use care when pulling loads or using heavy equipment.

- Use only approved drawbar hitch points.
- Limit loads to those you can safely control.
- Do not turn sharply. Use care when reversing.
- Use counterweight(s) or wheel weights when suggested in the instruction handbook .

7. Watch out for traffic when crossing or near roadways.

8. Stop the blades rotating before crossing surfaces other than grass.

9. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation .

10. Never operate the lawnmower with defective guards, shields or without safety protective devices in place.

11. Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speeds may increase the hazard of personal injury.

12. Before leaving the operator's position:

- disengage the power take-off and lower the attachments;
- change into neutral and set the parking brake;
- stop the engine and remove the key.

13. Disengage drive to attachments, stop the engine, and disconnect the spark plug wire(s)or remove the ignition key

- before cleaning blockages or unclogging chute;
- before checking, cleaning or working on the lawnmower;
- after striking a foreign object. Inspect the lawnmower for damage and make repairs before restarting and operating the equipment;
- if the machine starts to vibrate abnormally (check immediately).

14. Disengage drive to attachments when transporting or not in use.

15. Stop the engine and disengage drive to attachment

- before refueling;
- before removing the grass catcher;
- before making height adjustment unless adjustment can be made from the operator's position.

16. Reduce the throttle setting during engine runout and, if the engine is provided with a shutoff valve, turn the fuel off at the conclusion of mowing.

Maintenance and Storage

1. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.

2. Never store the equipment with petrol in the tank inside a building where fumes may reach an open flame or spark.

3. Allow the engine to cool before storing in any enclosure.

4. To reduce the fire hazard, keep the engine, silencer, battery compartment and petrol storage area free of grass, leaves, or excessive grease.

5. Check the grass catcher frequently for wear or deterioration.

6. Replace worn or damaged parts for safety.

7. If the fuel tank has to be drained, this should be done outdoors

8. On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.

9. When machine is to be parked, stored or left unattended, lower the cutting means unless a positive mechanical lock is used.

Sound & Vibration Levels

Sound Levels

This unit has an equivalent continuous A-weighted sound pressure at the operator ear of: 90 dB(A), based on measurements of identical machines per 84/538/EEC.

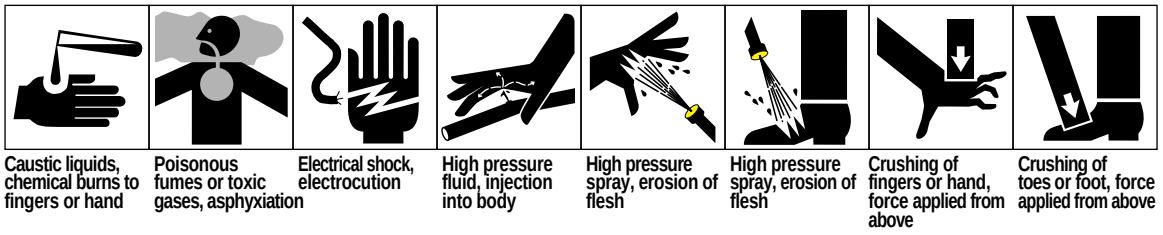
This unit has a sound power level of 106 dB(A)/1pW, based on measurements of identical machines per procedures outlined in Directive 79/113/EEC and amendments

Vibration Levels

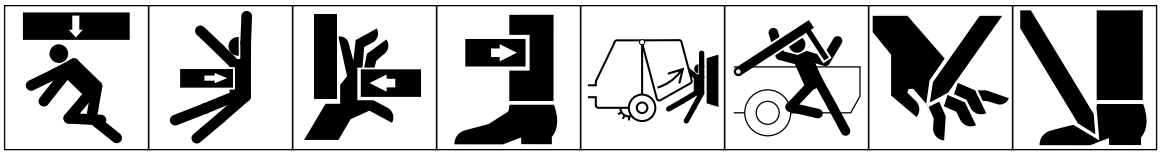
This unit has a vibration level of 5.5 m/s^2 at the posterior, based on measurements of identical machines per ISO 2631 procedures.

This unit does not exceed a vibration level of 0.5 m/s^2 at the posterior based on measurements of identical machines per ISO 2631 procedures.

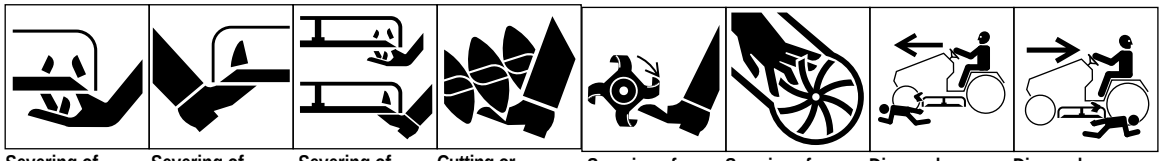
Symbol Glossary



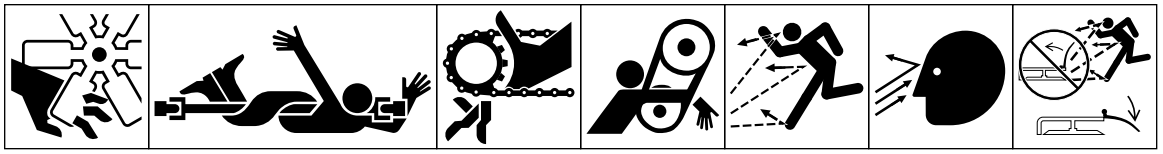
Caustic liquids, chemical burns to fingers or hand | Poisonous fumes or toxic gases, asphyxiation | Electrical shock, electrocution | High pressure fluid, injection into body | High pressure spray, erosion of flesh | High pressure spray, erosion of flesh | Crushing of fingers or hand, force applied from above | Crushing of toes or foot, force applied from above



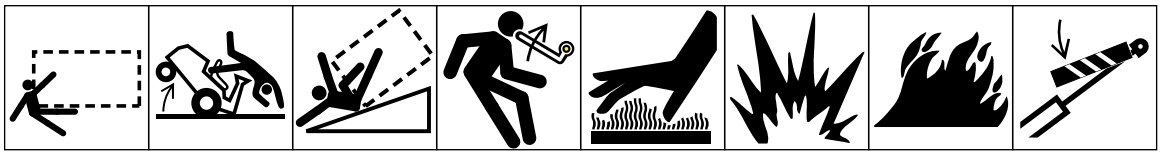
Crushing of whole body, applied from above | Crushing of torso, force applied from side | Crushing of fingers or hand, force applied from side | Crushing of leg, force applied from side | Crushing of whole body | Crushing of head, torso and arms | Cutting of fingers or hand | Cutting of foot



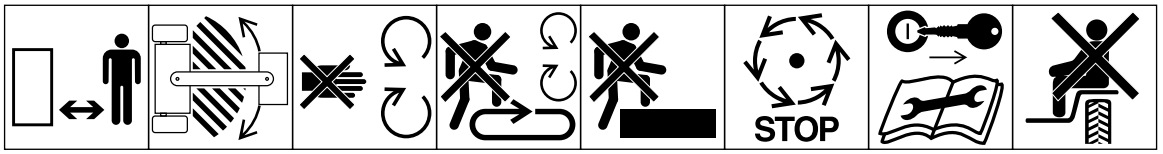
Severing of fingers or hand, mower blade | Severing of toes or foot, mower blade | Severing of toes or fingers, rotary mower blade | Cutting or entanglement of foot, rotating auger | Severing of foot, rotating knives | Severing of fingers or hand, impeller blade | Dismember-ment, front engine mower in forward motion | Dismember-ment, front engine mower in rearward motion



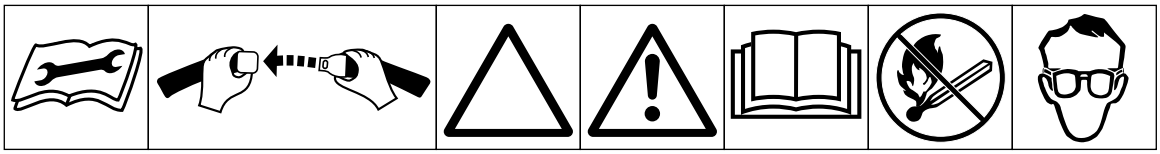
Severing of fingers or hand, engine fan | Whole body entanglement, implement input drive line | Fingers or hand entangle-ment, chain drive | Hand & arm entanglement, belt drive | Thrown or flying objects, whole body exposure | Thrown or flying objects, face exposure | Thrown or flying objects, rotary mover



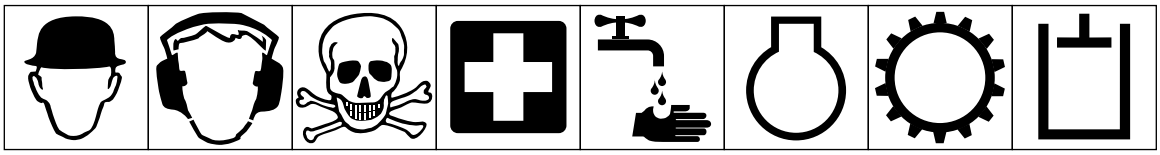
Runover/back-over, vehicle | Machine tipping, riding mower | Machine rollover, ROPS (rear engine mower) | Stored energy hazard, kickback or upward motion | Hot surfaces, burns to fingers or hands | Explosion | Fire or open flame | Secure lifting cylinder with locking device before getting in hazardous area



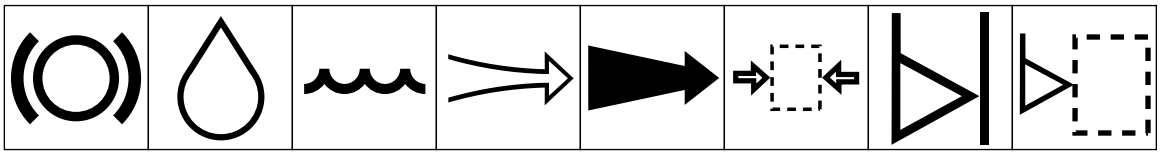
Stay a safe distance from the machine | Stay clear of articulation area while engine is running | Do not open or remove safety shields while engine is running | Do not step on loading platform if PTO is connect-ed to tractor & engine is running | Do not step | Wait until all machine comp-onents have completely stopped before touching them | Shut off engine & remove key before perform-ing maintenance or repair work | Riding on this machine is allowed only on a passen-ger seat & only if the driver's view is not hindered



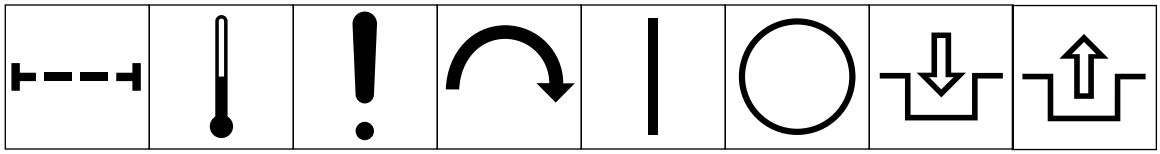
Consult technical manual for proper service procedures | Fasten seat belts | Safety alert triangle | Outline safety alert symbol | Read operator's manual | Fire, open light and smoking prohibited | Eye protection must be worn



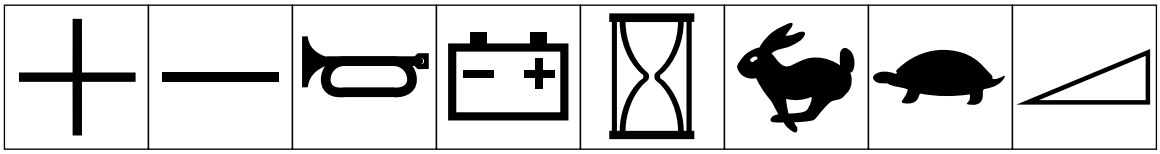
Head protection must be worn | Hearing protection must be worn | Caution, toxic risk | First aid | Flush with water | Engine | Transmission | Hydraulic system



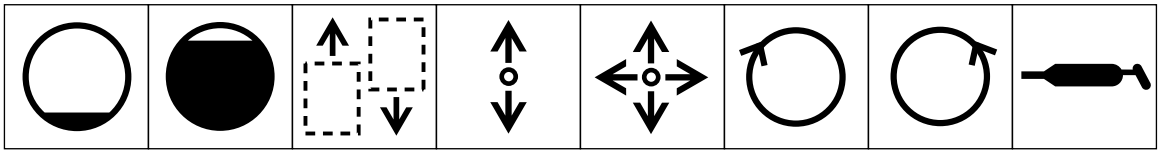
Brake system | Oil | Coolant (water) | Intake air | Exhaust gas | Pressure | Level indicator | Liquid level



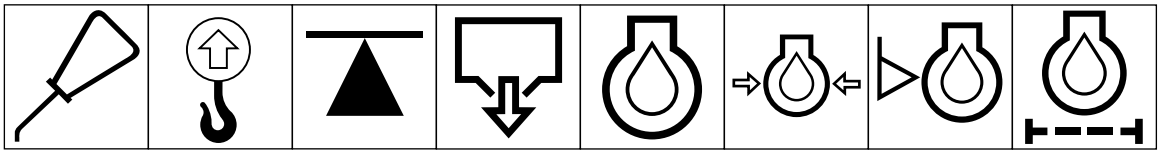
Filter | Temperature | Failure/ Malfunction | Start switch/ mechanism | On/start | Off/stop | Engage | Disengage



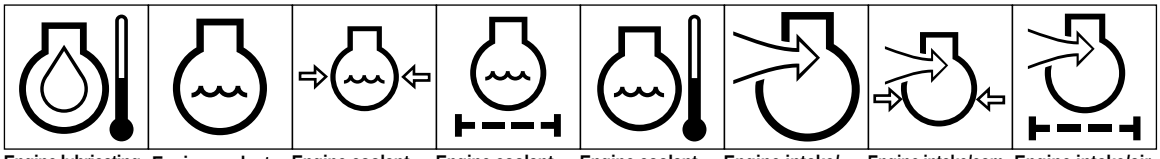
Plus/increase/ positive polarity | Minus/decrease/ negative polarity | Horn | Battery charging condition | Hourmeter/ elapsed operating hours | Fast | Slow | Continuous variable, linear



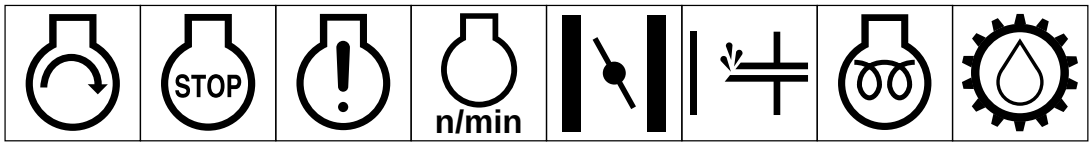
Volume empty | Volume full | Machine travel direction, forward/ rearward | Control lever operating direction, dual direction | Control lever operating direction, multiple direction | Clockwise rotation | Counter-clock-wise rotation | Grease lubrication point



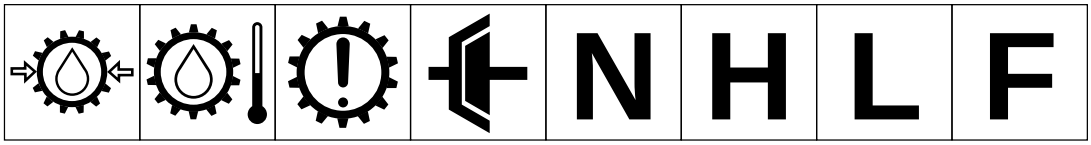
Oil lubrication point | Lift point | Jack or support point | Draining/ emptying | Engine lubricat-ing oil | Engine lubricating oil pressure | Engine lubricating oil level | Engine lubricating oil filter



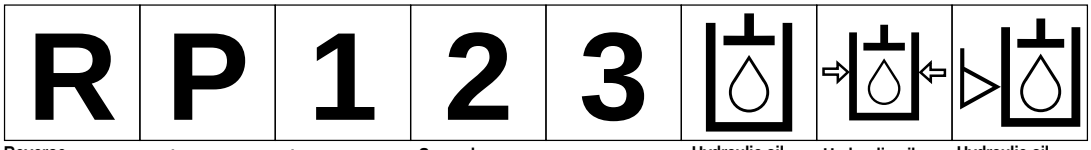
Engine lubricating oil temperature | Engine coolant | Engine coolant pressure | Engine coolant filter | Engine coolant temperature | Engine intake/ combustion air | Engine intake/com-bustion air pressure | Engine intake/air filter



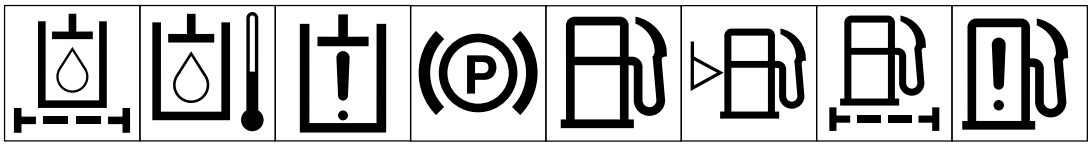
Engine start | Engine stop | Engine failure/ malfunction | Engine rotational speed/frequency | Choke | Primer (start aid) | Electrical preheat (low temperature start aid) | Transmission oil



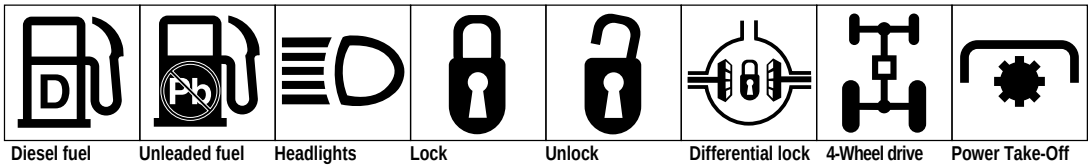
Transmission oil pressure | Transmission oil temperature | Transmission failure/malfunction | Clutch | Neutral | High | Low | Forward



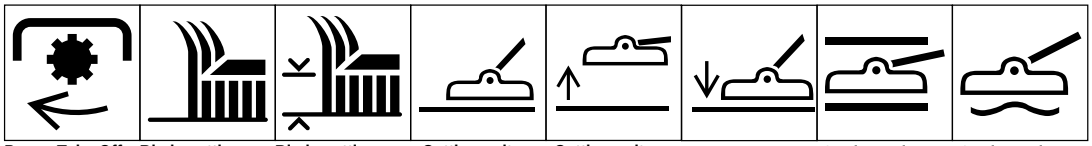
Reverse | Park | First gear | Second gear | Third gear (other #'s may be used until the maximum # of forward gears is reached.) | Hydraulic oil | Hydraulic oil pressure | Hydraulic oil level



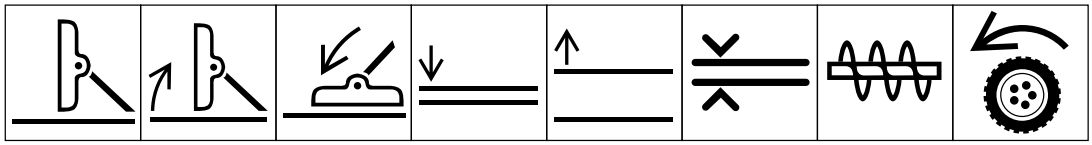
Hydraulic oil filter | Hydraulic oil temperature | Hydraulic oil failure/malfunction | Parking brake | Fuel | Fuel level | Fuel filter | Fuel system failure/malfunction



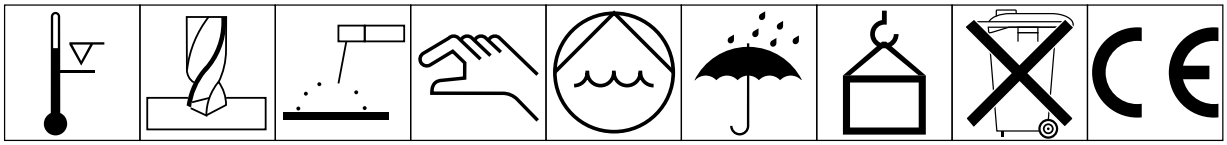
Diesel fuel | Unleaded fuel | Headlights | Lock | Unlock | Differential lock | 4-Wheel drive | Power Take-Off



Power Take-Off, rotational speed | Blade cutting element | Blade cutting element, height adjustment | Cutting unit | Cutting unit, raise | Cutting unit, lower | Cutting unit, hold | Cutting unit, float



Cutting unit, transport position | Cutting unit, raise to transport position | Cutting unit, lower to transport position | Attachment lower | Attachment raise | Spacing distance | Snow thrower, collector auger | Traction



Above working temperature range | Drilling | Manual metal arc welding | Manual | Water pump | Keep dry | Weight | Do not dispose in the garbage | CE logo

Specifications

Width of Cut: 72 inches (183 cm)

Height of Cut: Adjustable from 5–12.7 cm in 1.25 cm increments.

Cutter Housing: 12-gauge steel and reinforced with 2-1/2" x 10 gauge channel.

Cutting Unit Drive: Power is transmitted to the blades by one hex B section belt. Spindle shafts are 3.2 cm diameter and supported by two externally-sealed, greaseable, tapered roller bearings.

Cutting Unit: The cutting unit has front and rear castor wheels, and three heat-treated steel blades 63.5 cm long and 6.3 mm thick.

Castor Wheels: The two front castor wheels have roller bearings with 10.25 in x 3.25 in. hard rubber tires. The rear wheels have roller bearings and 8 in. x 3.50 in. hard rubber tires.

Blade Tip Speed: At 3200 engine rpm, blade tip speed is 15,800 ft/min.

Cutting Unit Lift: The cutting unit is lifted by a hydraulic cylinder that has a 6.3 cm bore and 8.3 cm stroke.

Dimensions and Weights:

Width: 190.5 cm
Weight: 172 kg

Specifications and design are subject to change without notice.

Before Operating

CHECK THE GEAR BOX LUBRICANT (Fig. 1)

The gear box in designed to operate on SAE 80-90 weight gear lubrication. Although the gear box is shipped from the factory with lubricant, check the level before operating the cutting unit.

1. Position the machine and cutting unit on a level surface.

2. Remove the check plug from the side of the gear box and make sure the lubricant level is up to the bottom of the hole. If the level of lubricant is low, remove the fill plug on top of the gear

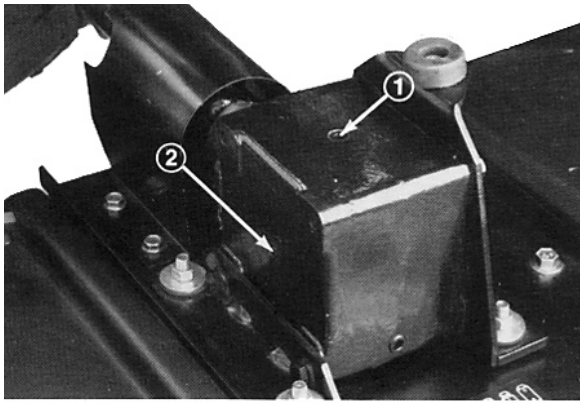


Figure 1

1. Filler plug
2. Check plug

case and add enough lubricant to bring it up to the bottom of the hole in side.

ADJUSTING HEIGHT-OF-CUT (Fig. 2–3)

The height-of-cut is adjustable from 5 to 12.7 inches in 1.3 cm increments, by adding or removing an equal number of spacers from the front and rear castor forks. The height-of-cut chart below gives the combinations of spacers to use for all height-of-cut settings.

Height of Cut Setting	**Spacers Below Castor Arm**	
	Front	**Rear**
5 cm	0	0
6.3 cm	1	1
7.6 cm	2	2
8.9 cm	3	3
10.1 cm	4	4
11.4 cm	5	5
12.7 cm	6	6

1. Start the engine and raise the cutting unit so the height-of-cut can be changed. Stop the engine after you raise the cutting unit.

FRONT CASTOR WHEELS

1. Remove the lynch pin from the spindle shaft and slide the spindle out of the front castor arm. Remove the washer from the spindle shaft. Slide spacers onto the spindle shaft to the get desired height-of-cut, then slide the washer onto the shaft.

2. Push the castor spindle through the front castor arm. Install the other thrust washer and the remaining spacers onto the spindle and install the lynch pin to secure the assembly.

REAR CASTOR WHEELS

1. Remove the lynch pin from spindle shaft.

Note: You don’t need to remove the rear castor fork assembly from the castor arm to change height-of-cut.

2. Remove or add "C" shaped spacers at the narrow portion of the spindle shaft, below the castor arm, to get the desired height-of-cut. Make sure thrust washers —not the spacers—contact the top and bottom of the castor arm.

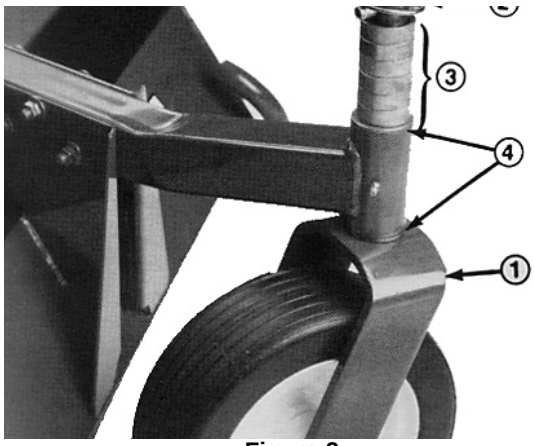


Figure 2

1. Front castor wheel
2. Lynch pin
3. Spacers
4. Thrust washers

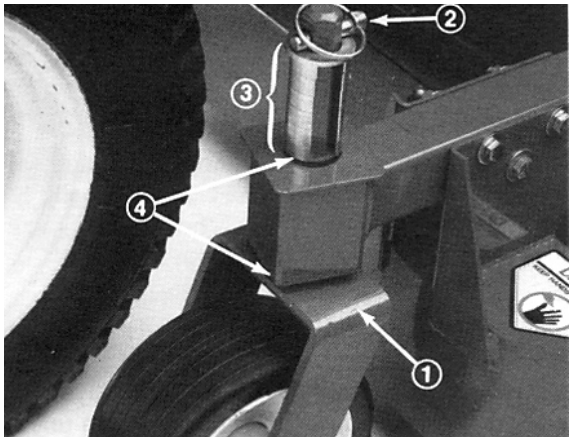


Figure 3

1. Rear castor wheel
2. Lynch pin
3. Spacers
4. Thrust washers

Operating Instructions

3. Install the lynch pin to secure the assembly .

4. Assure all four castor wheels are set at same height-of-cut.

ADJUSTING SKIDS (Fig. 4)

1. Adjust skids by loosening flange nuts, positioning as desired and re-tightening the flange nuts.

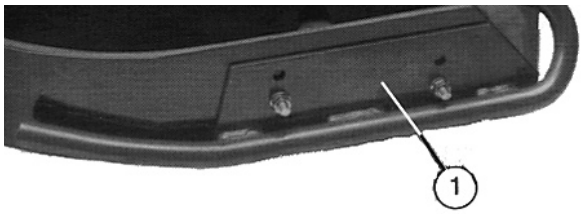


Figure 4

1. Skid

OPERATING TIPS

1. MOW WHEN GRASS IS DRY—Mow either in the late morning to avoid the dew, which causes grass clumping, or in late afternoon to avoid the damage that can be caused by direct sunlight on the sensitive, freshly mowed grass.

2. SELECT THE PROPER HEIGHT-OF-CUT SETTING TO SUIT CONDITIONS—Remove approximately one inch or no more than 1/3 of the grass blade when cutting. In exceptionally lush and dense grass, you may have to raise your height-of-cut setting another notch.

3. MOWING IN EXTREME CONDITIONS—Air is required to cut and recut grass clippings in the mower housing, so do not set the height-of-cut too low or totally surround the housing by uncut grass. Always try to have one side of the mower housing free from uncut grass, thus allowing air to be drawn into housing. When making an initial cut through the center of an uncut area, operate the machine slower and back up if the mower starts to clog.

4. MOW AT PROPER INTERVALS—Under most normal conditions you'll need to mow every 4–5 days. Remember, grass grows at different rates at different times. To maintain the same height-of-cut—which is a good practice—you'll need to cut more frequently in early spring. When the grass growth rate slows in mid summer, cut only every 8–10 days. If you are unable to mow for an extended period, mow first with the height-of-cut at a high level; then mow again 2–3 days later with a lower height setting.

5. ALWAYS MOW WITH SHARP BLADES—A sharp blade cuts cleanly and without tearing or shredding the grass. Tearing and shredding causes the grass to turn brown at the

edges, which impairs growth and increases susceptibility to diseases.

CAUTION: This product may exceed noise levels of 85 dB(A) at the operator position. Ear protectors are recommended for prolonged exposure to reduce the potential of permanent hearing damage.

6. STOPPING—If you stop while cutting, a clump of grass clippings may be deposited on lawn. Follow this procedure for stopping while cutting:

A. With the deck engaged, move onto a previously cut area.

B. Shift to neutral, move the throttle control lever to SLOW and rotate ignition key to OFF.

7. AFTER OPERATING —For optimum performance, clean the underside of the mower housing. If you let residue build up in the mower housing, cutting performance will decrease.

Maintenance

LUBRICATION

GREASE BEARINGS, BUSHINGS AND GEAR BOX (Fig. 5–8)

Lubricate the cutting unit regularly. If you operate the machine under normal conditions, lubricate the castor bearings and bushings with No. 2 general purpose lithium base grease or molybdenum base grease, after every 8 hours of operation or daily, whichever comes first.

1. The cutting unit has bearings and bushings that must be lubricated, and these lubrication points are: front castor spindle bushings (Fig. 5); castor wheel bearings (Fig. 5 & 6); blade spindle bearings (Fig. 7); idler arm pivot (Fig. 7) and right and left push-arm ball joints (Fig. 7).

Also, remove the rear castor spindle shaft from the castor arm and coat the shaft with No. 2 general purpose lithium base grease or molybdenum base grease every 50 hours (Fig. 6).

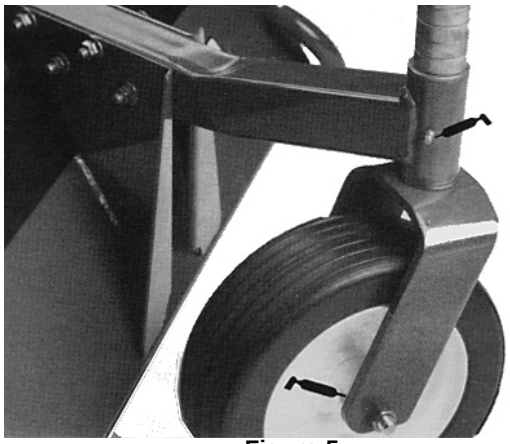


Figure 5

2. Position the machine and cutting unit on a level surface and lower the cutting unit. Remove the check plug from the side of gear box (Fig. 8) and make sure the lubricant level is up to the

bottom of the hole. If the level is low, remove the fill plug on top of the gear case and add SAE 80-90 weight gear lubrication until the level is up to the bottom of the hole in side.

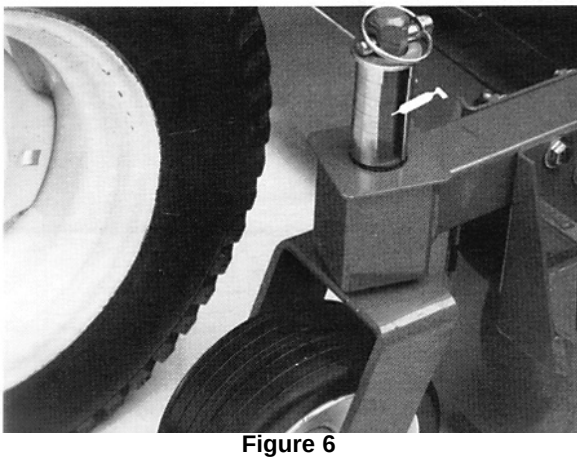


Figure 6

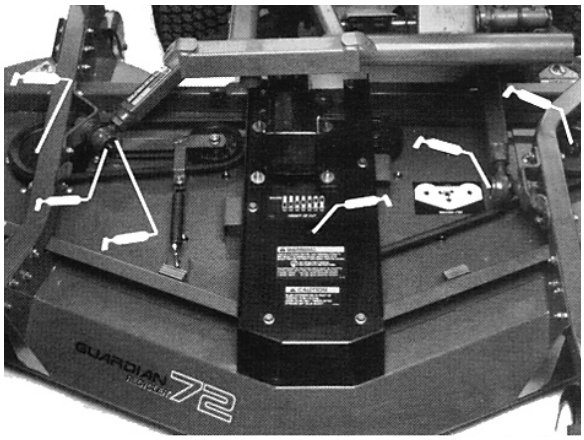


Figure 7

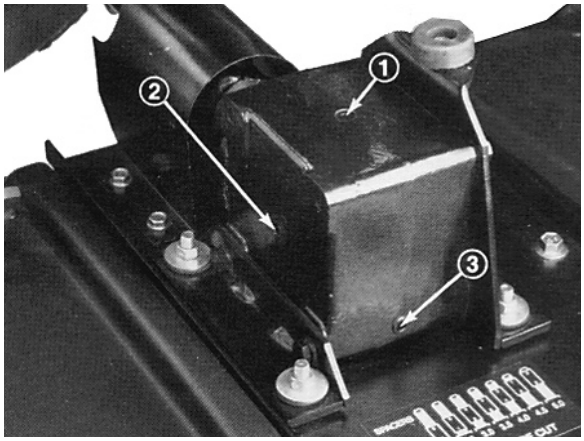
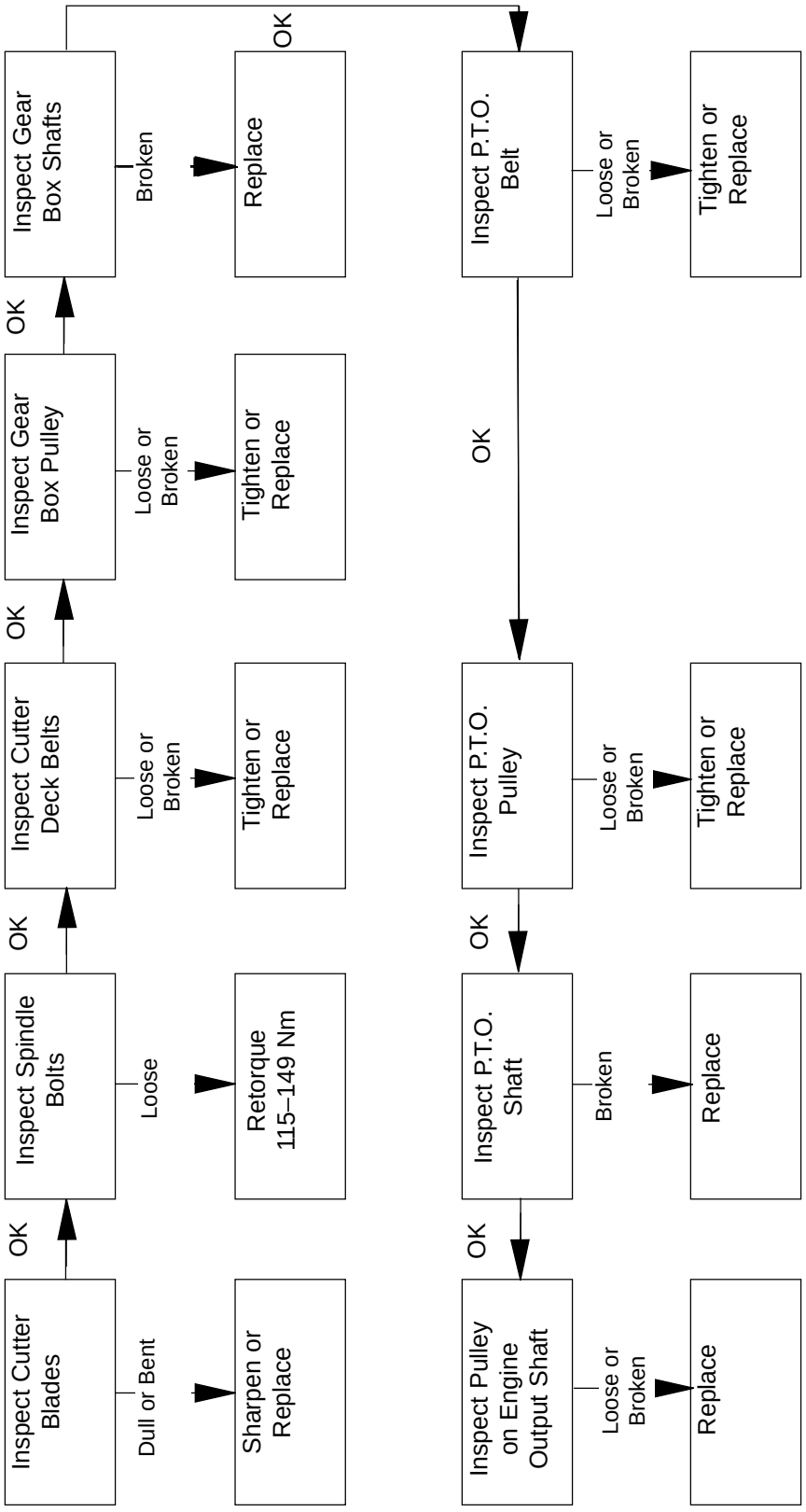


Figure 8

1. Filler plug
2. Check plug
3. Drain plug

UNIT WILL NOT CUT OR CUTS POORLY



⚠ CAUTION

To prevent accidental starting of the engine while performing maintenance, shut of the engine and remove the key from the ignition switch.

SEPARATING THE CUTTING UNIT FROM THE TRACTION UNIT (Fig 9–11)

1. Position the machine on level surface, lower the cutting unit to the floor, shut the engine off and engage the parking brake.

2. Remove the self-tapping screws securing the shield to the top of the cutting unit and set the shield aside.

3. Drive out the roll pin securing the drive shaft yoke to the input shaft of the gear box. Loosen the capscrews and locknuts and slide the yoke off the input shaft. If the traction unit will be used without the cutting unit, drive the roll pin out of the yoke at the traction unit PTO shaft and remove the entire drive shaft from the traction unit.

⚠ DANGER

Do not start the engine and engage the PTO lever when the PTO shaft is not connected to the gear box on the cutting unit. If the engine is started and the PTO shaft is allowed to rotate, serious injury could result.

4. Disconnect the cotter pins and clevis pins securing the lift chains to the lift arms.

⚠ WARNING

Since the right-hand push arm is spring loaded and the left-hand push arm is spring loaded, a helper is needed to push the arm down. Sudden release of the push arm could cause injury.

5. Have a helper push down on the right push arm while you remove the capscrews, flatwashers and locknuts securing the ball joint mount to the castor arm on the cutting unit. Now the helper can carefully allow the push arm to move upward, which will gradually release the spring load.

6. Have a helper push down on the left push arm while you

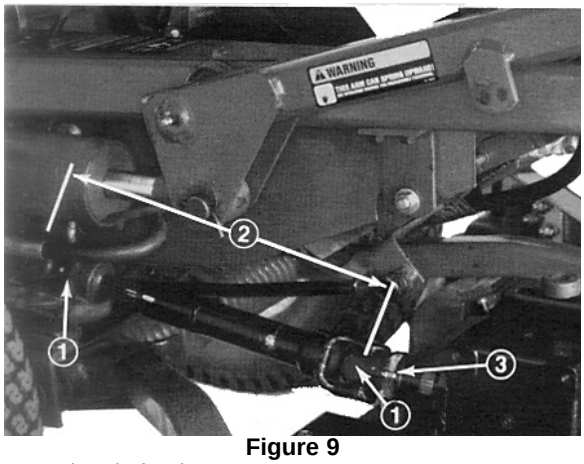


Figure 9

1. Drive shaft yokes
2. Yokes in phase
3. Roll pin & capscrews

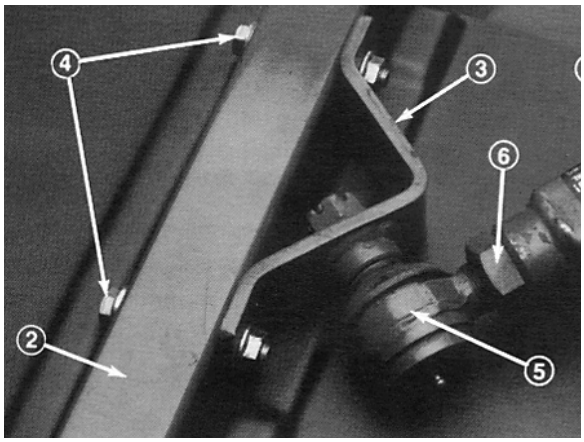


Figure 10

1. R. H. Push arm
2. Castor arm
3. Ball joint mount
4. Capscrews & washers
5. Ball joint
6. Jam nut

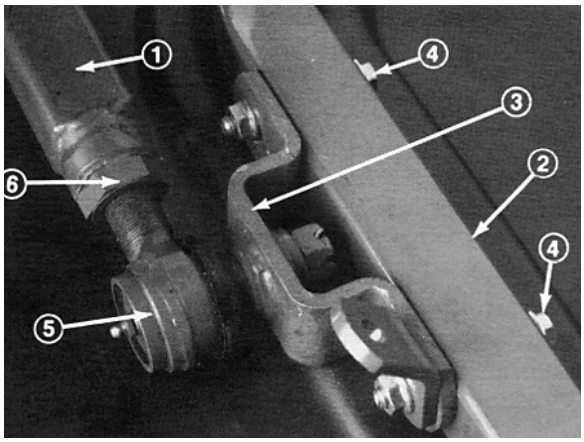


Figure 11

1. L. H. Push arm
2. Castor arm
3. Ball joint mount
4. Capscrews & washers
5. Ball joint
6. Jam nut

remove the capscrews, flatwashers and locknuts securing the ball joint mount to the castor arm on the cutting unit. Now the helper can carefully allow the push arm to move upward, which will gradually release the spring load.

7. Roll the cutting unit away from the traction unit.

MOUNTING THE CUTTING UNIT TO THE TRACTION UNIT (Fig 9–11)

1. Position the machine on a level surface and shut the engine off.

2. Move the cutting unit into position in front of the traction unit.

⚠ WARNING

Since the right-hand push arm is spring loaded and the left-hand push arm is spring loaded, a helper is needed to push the arm down. Sudden release of the push arm could cause injury.

3. Have a helper carefully push down on the right push arm until the holes in the ball joint mount line up with the holes in the castor arm.

4, Secure the ball joint mount to the castor arm with capscrews, flatwashers and flange nuts. Position flatwashers outside of the castor arm.

5. Have a helper carefully push down on the left push arm until the holes in the ball joint mount line up with the holes in the castor arm. Immediately slide a 10 x 10 cm block of wood between the top of the push arm and the underside of the chassis.

⚠ WARNING

Make sure the wooden block does not slip out accidentally. Sudden release of the push arm could cause injury

6. Secure the ball joint mount and chain bracket to the castor arm with capscrews, flatwashers and flange nuts. Position the flatwashers to the outside of the castor arm. Position the chain bracket in the forward set of holes.

7. Carefully remove the wood block holding the push arm down.

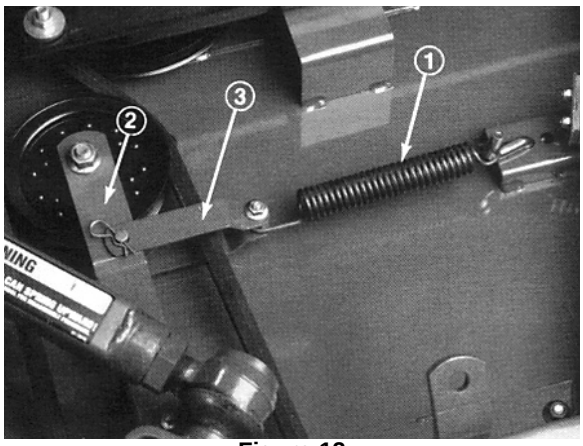


Figure 12

1. Spring
2. Idler arm
3. Idler arm bracket

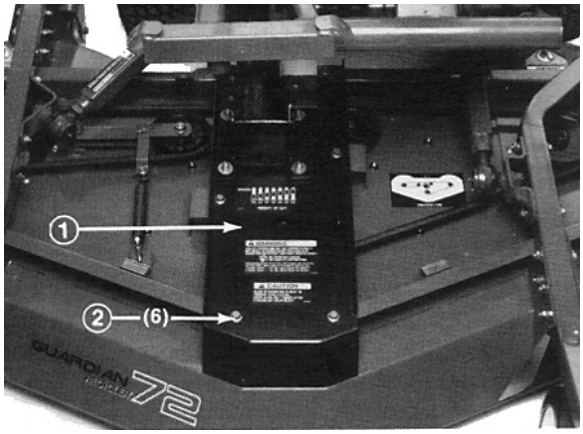


Figure 13

1. Gear box plate
2. Capscrews & nuts

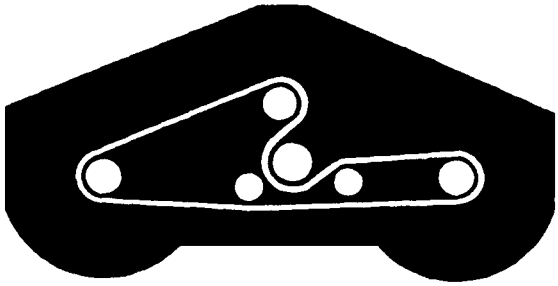


Figure 14
Belt Routing

8. Line up the holes in the yoke and the input shaft of the gear box. Slide the yoke onto the shaft and secure together with a roll pin and two 5⁄16-18 x 1-3⁄4 inch long capscrews and 5⁄16-18 locknuts.

REPLACING THE DRIVE BELT (Fig 12–14)

The blade drive belt, tensioned by the spring-loaded idler pulley, is very durable. However, after many hours of use, the belt will show signs of wear. Signs of a worn belt are: squealing when the belt is rotating, blades slipping when cutting grass, frayed edges, burn marks and cracks. Replace the belt if any of these conditions are evident.

1. Lower the cutting unit to the shop floor. Remove the belt covers from the top of the cutting unit and set the covers aside.

2. Unhook the spring from the idler arm bracket to release belt tension. Remove the cotter pin and clevis pin securing the idler arm bracket to the idler arm.

3. Remove the capscrews and flange nuts securing the gear box plate to the deck channels. Lift the gear box plate and the gear box off the deck channels and lay them on top of the deck.

4. Remove the old belt from around the spindle pulleys and through the idler pulley assembly.

5. Route the new belt around the spindle pulleys and through the idler pulley assembly, as shown in Figure 13.

6. Reposition the gear box plate on the deck while routing the belt around the gear box pulley. Mount the gear box plate to the deck with the capscrews and nuts you previously removed.

7. Reinstall the idler arm bracket to the idler arm with a cotter pin and clevis pin. Hook the spring onto the idler arm bracket. To assure proper tension on the drive belt, extend the spring to a length of 17.8 cm. If the spring is not extended to this length, relocate the spring rod to a new mounting hole further away from the belt.

8. Reinstall the belt covers.

SERVICING THE FRONT BUSHINGS IN THE CASTOR ARMS (Fig 15)

The castor arms have bushings pressed into the top and bottom of

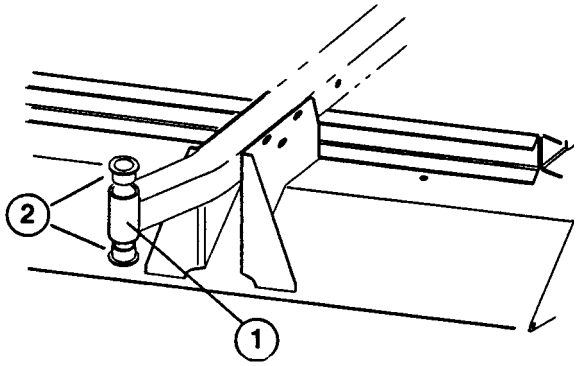


Figure 15

1. Front castor arm tube
2. Bushings

the tube and after many hours of operation, the bushings will wear. To check the bushings, move the castor fork back and forth and from side to side. If the castor spindle is loose inside the bushings, bushings are worn and must be replaced.

1. Raise the cutting unit so its wheels are off the floor and block it so that it cannot fall accidentally.

2. Remove the lynch pin, spacer(s) and thrust washer from top of the castor spindle.

3. Pull the castor spindle out of the mounting tube. Allow the thrust washer and spacer(s) to remain on bottom of the spindle.

4. Insert a pin punch into the top or bottom of the mounting tube and drive the bushing out of the tube. Also drive the other bushing out of the tube. Clean inside the tubes to remove dirt.

5. Apply grease to the inside and outside of the new bushings. Using a hammer and flat plate, drive the bushings into the mounting tube.

6. Inspect the castor spindle for wear and replace it if damaged.

7. Push the castor spindle through the bushings and mounting tube. Slide the thrust washer and spacer(s) onto the spindle. Install the tensioning cap on the castor spindle to retain all parts in place.

SERVICING THE CASTOR WHEELS AND BEARINGS (Fig. 16)

The castor wheel rotates on a high-quality roller bearing and is supported by a spanner bushing. Even after many hours of use, provided that the bearing was kept well-lubricated, bearing wear will be minimal. However, failure to keep the bearing lubricated will cause rapid wear. A wobbly castor wheel usually indicates a worn bearing.

1. Remove the locknut from the capscrew holding the castor wheel assembly between the castor fork. Grasp the castor wheel and slide the capscrew out of the fork.

2. Pull the spanner bushing out of the wheel hub.

3. Remove the bushing from the wheel hub and allow the bearing to fall out. Remove the bushing from the opposite side of the wheel hub.

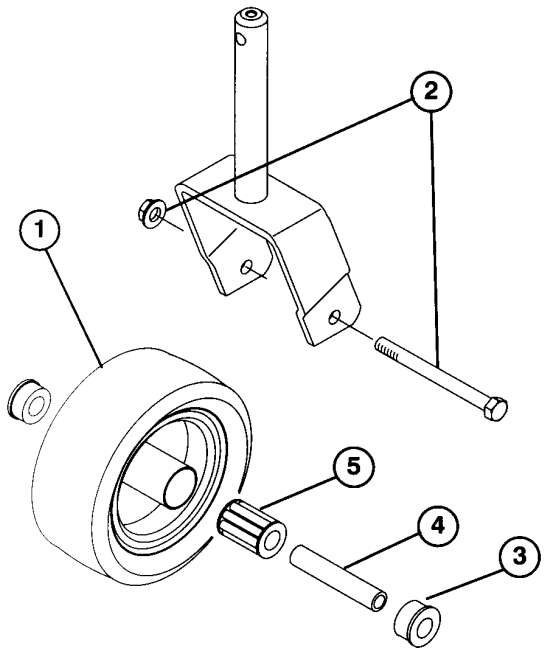


Figure 16

1. Castor wheel
2. Capscrew & locknut
3. Bushing (2)
4. Spanner bushing
5. Roller bearing

4. Check the bearing, spanner and inside of the wheel hub for wear. Replace defective parts.

5. To assemble the castor wheel, push the bushing into wheel hub. Slide the bearing into the wheel hub. Push the other bushing into the open end of the wheel hub to captivate the bearing inside the wheel hub.

6. Carefully slide the spanner through the bushings and the wheel hub.

7. Install the castor wheel assembly between the castor fork and secure in place with a capscrew and locknut.

8. Lubricate the castor wheel bearing through the grease fitting, using No. 2 general purpose lithium base grease.

REMOVING THE CUTTER BLADE (Fig. 17)

The blade must be replaced if a solid object is hit, the blade is out-of-balance or if the blade is bent. Always use genuine TORO replacement blades to be sure of safety and optimum performance. Never use replacement blades made by other manufacturers because they could be dangerous.

1. Raise the cutting unit to its highest position, shut the engine off and engage the parking brake. Block the cutting unit to prevent it from falling accidentally.

2. Grasp the end of blade using a rag or thickly padded glove. Remove the blade bolt, lockwasher, cup and blade from the spindle shaft.

⚠ WARNING

- Trying to straighten a blade that is bent or welding a broken or cracked blade may result in serious personal injury and/or discontinued safety certification of the product
- Do not try to straighten a blade that is bent, and never weld a broken or cracked blade.
- Always replace a damaged blade

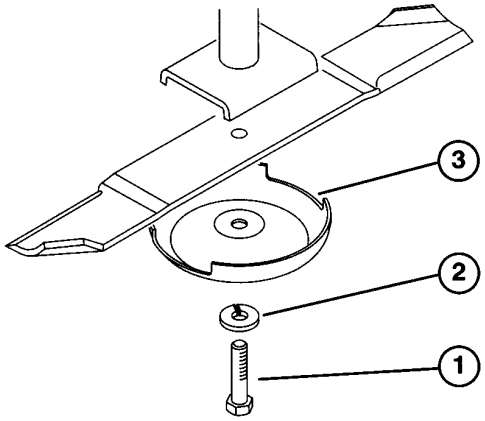


Figure 17

1. Blade bolt
2. Lockwasher
3. Anti-scalp cup

3. Install blade–sail facing toward the cutting unit with the cup, lockwasher and blade bolt. Tighten the blade bolt to 85-110 ft-lb.

INSPECTING AND SHARPENING BLADE (Fig. 18–19)

1. Raise the cutting unit to the highest position, shut the engine off and engage the parking brake. Block the cutting unit to prevent it from falling accidentally.

2. Examine the cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 26-A). Since sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the machine. If you notice wear (Fig. 26-B), replace the blade: refer to *Removing Cutter Blade*.

⚠ WARNING

If the blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 26-C). Eventually a piece of the blade may break off and be thrown from under the housing, possibly resulting in serious injury to yourself or bystander.s.

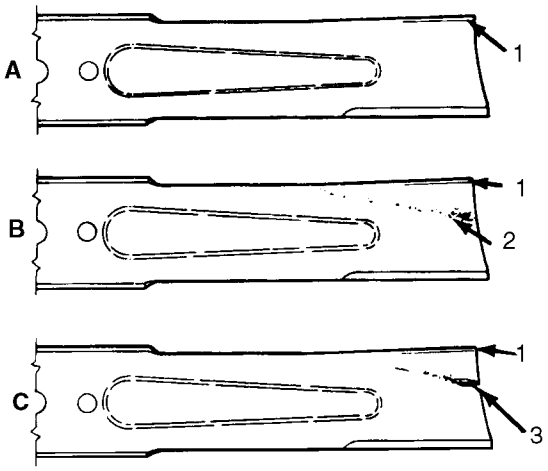


Figure 18

1. Sail
2. Wear
3. Slot formed

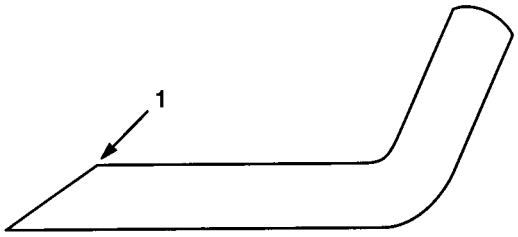


Figure 19

1. Sharpen at this angle only

3. Inspect the cutting edges of all blades. Sharpen the cutting edges if they are dull or nicked. Sharpen only the top of the cutting edge and maintain the original cutting angle to make sure of sharpness (Fig. 27). The blade will remain balanced if the same amount of metal is removed from both cutting edges.

4. To check the blade for being straight and parallel, lay it on a level surface and check its ends. Ends of blade must be slightly lower than the center, and the cutting edge must be lower than the heel of the blade. This blade will produce a good quality of cut and require minimal power from the engine. By contrast, a blade that is higher at the ends than the center, with a cutting edge higher than the heel, must be replaced.

5. Install the blade-sail facing toward the cutting unit with the cup, lockwasher and blade bolt. Tighten the blade bolt to 115–149Nm

CORRECTING CUTTING UNIT MISMATCH

If there is mismatch between the blades, the grass will appear streaked when it is cut. Correct this by making sure the blades are straight and all blades cut on the same plane.

1. Using a 1-meter long carpenters level, find a level surface on the shop floor.

2. Raise the height of cut to the highest position.

3. Lower the cutting unit onto a flat surface. Remove the covers from the top of the cutting unit.

4. Unhook the spring from the idler arm bracket to release belt tension.

5. Rotate the blades until the ends face forward and backward. Measure from the floor to the front tip of the cutting edge and remember this dimension. Then rotate the same blade so that its opposite end is forward and measure again. The difference between dimensions must not exceed 32 mm. If it does, replace the blade because it is bent. Make sure to measure all blades.

6. Compare measurements of the outer blades with the center blade. The center blade must not be more than 94mm lower than the outer blades. If the center blade is more than 94mm lower than the outer blades, go to step 7 and add shims between the spindle housing and the bottom of the cutting unit.

7. Remove the capscrews, flatwashers, lockwashers and nuts from the outer spindle in the area where shims must be added. To raise or lower the blade, add a shim, Part No. 3256-24, between the spindle housing and the bottom of cutting unit. Continue to check alignment of blades and add shims until the tips of the blades are within the required dimension.

   IMPORTANT: Do not use more than three shims at any one hole location. Use decreasing numbers of shims in adjacent holes if more than one shim is added to any one hole location.

8. Hook the spring onto the idler arm bracket. Reinstall the belt covers.

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBERS

The cutting deck has two identification numbers: a model number and a serial number. The two numbers are stamped into a plate on rear of the mower deck, under cover. In any correspondence concerning the mower, supply the model and serial numbers to assure that correct information and replacement parts are obtained.

To order replacement parts from an authorized TORO Distributor, supply the following information:

1. Model and serial numbers of the machine.

2. Part number, description and quantity of parts desired.

Note: Do not order by reference number if a parts catalog is being used; use the part number.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