



MODEL NO. 30724-20000301 & UP

OPERATOR'S MANUAL

CONTOUR 82 DECK FOR GROUNDMASTER® 3000 SERIES TRACTION UNITS

To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of the machine read and understand the contents of this manual before the engine is ever started. Pay particular attention to the **SAFETY INSTRUCTIONS** highlighted by this symbol —



The safety alert symbol means **CAUTION, WARNING or DANGER** — personal safety instruction. Failure to comply with the instruction may result in personal injury.



The Groundmaster 3000 Series Traction unit with a CONTOUR 82 Deck conforms to the American National Standards Institute's for Riding Mowers.



FOREWORD

The Contour 82 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 safety of the user. Therefore, read this manual to familiarize yourself with proper set-up, operation and maintenance instructions. The major sections of the manual are:

- | | | |
|------------------------|---------------------------|----------------|
| 1. Safety Instructions | 3. Before Operating | 5. Lubrication |
| 2. Set-up Instructions | 4. Operating Instructions | 6. Maintenance |

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.

TABLE OF CONTENTS

	Page		Page
SAFETY INSTRUCTIONS	3-4	OPERATING INSTRUCTIONS	13
SAFETY AND INSTRUCTION DECALS	5	Operating Tips	13
SPECIFICATIONS	6	Transport Levers	14
LOOSE PARTS	7	LUBRICATION	15
SET-UP INSTRUCTIONS	7-10	Grease Bearings, Bushings and Gear Box ...	15
Verify Lift Arm Ball Joint Adjustment	7	MAINTENANCE	16-19
Mount Right Rear Castor Assembly	7	Disconnect Cutting Unit from Traction Unit ...	16
Mount Left Front Castor Wheel	8	Connect Cutting Unit to Traction Unit	16
Mount Rear Guard	8	Servicing Front Bushings in Castor Forks ...	17
Install Brake Shield	8	Servicing Castor Wheels and Bearings	17
Mount Cutting Unit To Traction Unit	9	Removing Cutter Blade	18
Grease Cutting Unit	10	Inspecting and Sharpening Blades	18
Adjust Counter Balance Pressure	10	Correcting Cutting Unit Mismatch	19
Install Rear Weight	10	Adjust Chamber Pivots	19
BEFORE OPERATING	11-12	HYDRAULIC SCHEMATIC	22
Check Hydraulic Fluid	11	IDENTIFICATION AND ORDERING	23
Adjusting Height-of-Cut	11	THE TORO PROMISE	Back Cover
Adjusting Deck Pitch	12		

SAFETY INSTRUCTIONS



The safety alert symbol means **CAUTION, WARNING or DANGER** — “personal safety instruction”. Read and understand the instruction because it has to do with safety. Failure to comply with the instruction may result in personal injury.

Hazard control and accident prevention are dependent upon the awareness, concern, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the machine. Improper use or maintenance of the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.

BEFORE OPERATING

1. Read and understand the contents of this Operator's Manual before operating the machine. Become familiar with all controls and know how to stop quickly. A free replacement manual is available by sending complete Model and Serial Number to:

The Toro Company
8111 Lyndale Avenue South
Minneapolis, Minnesota 55420–1196

2. Never allow children to operate the machine. Do not allow adults to operate machine without proper instruction. Only trained operators who have read this manual should operate this machine.

3. Never operate the machine when under the influence of drugs or alcohol.

4. Remove all debris or other objects that might be picked up and thrown by the cutter blades. Keep all bystanders away from the mowing area.

5. Keep all shields and safety devices in place. If a shield, safety device or decal is illegible or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts and screws to assure machine is in safe operating condition.

6. Do not operate machine while wearing sandals, tennis shoes, sneakers or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes and a helmet is advisable and required by some local ordinances and insurance regulations.

7. Check interlock switches daily for proper operation (Refer To Section in Traction Unit Operator's Manual on Checking Interlock Switches). Do not rely entirely on safety switches -shut off engine before getting off seat. If a switch fails, replace it before operating the machine. The interlock system is for your protection, so do not bypass it. Replace all interlock switches every two years. Interlock switches should be adjusted so:

A. Engine cannot be started unless traction pedal is released (neutral position) and PTO switch is DISENGAGED (off position).

B. Engine stops if operator gets off seat when traction pedal is depressed.

C. Engine stops if operator gets off seat when PTO lever is ENGAGED (on position).

8. Fill fuel tank before starting the engine. Avoid spilling any fuel. Since fuel is flammable, handle it carefully.

A. Use an approved fuel container.

B. Do not fill tank while engine is hot or running.

C. Do not smoke while handling gasoline.

D. Fill fuel tank outdoors and up to about one inch from top of the tank, not the filler neck.

E. Wipe up any spilled gasoline.

WHILE OPERATING

9. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.

10. Maximum seating capacity is one person. Never carry passengers.

11. Sit on the seat when starting the engine and operating the machine.

12. 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.

13. Before starting the engine:

A. Engage the parking brake.

B. Ensure traction pedal is in neutral and PTO is in the OFF, disengaged position.

C. After engine is started, release parking brake and keep foot off traction pedal. Machine must not move. If movement is evident, the neutral return mechanism is adjusted incorrectly; therefore, shut engine off and adjust until machine does not move when traction pedal is released.

14. Using the machine demands attention, and to prevent loss of control:

A. Mow only in daylight or when there is good artificial light.

B. Drive slowly and watch for holes or other hidden hazards.

SAFETY INSTRUCTIONS

- C. Do not drive close to a sand trap, ditch, creek or other hazard.
 - D. Reduce speed when making sharp turns and when turning on hillsides.
 - E. Avoid sudden starts and stops.
 - F. Before backing up, look to the rear and assure no one is behind the machine.
 - G. Watch out for traffic when near or crossing roads. Always yield the right-of-way.
- 15.** If engine stalls or machine loses headway and cannot make it to the top of a slope, do not turn machine around. Always back slowly straight down the slope.
- 16. DON'T TAKE AN INJURY RISK!** When a person or pet appears unexpectedly in or near the mowing area, **STOP MOWING**. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume mowing until area is cleared.
- 17.** Never raise the cutting unit while the blades are rotating.
- 18.** If the cutting blades strike a solid object or the machine vibrates abnormally, disengage PTO, move throttle to SLOW, set parking brake and shut engine off. Remove key from switch to prevent possibility of accidental starting. Check cutting unit and traction unit for damage and malfunctioning parts. Repair any damage before restarting the engine and operating the cutting unit. Be sure blades are in good condition and blade bolts are tight.
- 19.** Cut grass slopes carefully. Do not start, stop, or turn suddenly.
- 20.** Do not touch engine or muffler while engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.
- 21.** Before getting off the seat:
- A. Move traction pedal to neutral position and remove foot from pedal.
 - B. Set the parking brake and disengage the PTO.
 - C. Shut the engine off and remove the key from the ignition switch. Wait for all movement to stop before getting off the seat.
- 22.** Lower the cutting unit to the ground and remove key from ignition switch whenever machine is left unattended.
- MAINTENANCE**
- 23.** Remove key from ignition switch to prevent accidental starting of the engine when servicing, adjusting or storing the machine.

- 24.** Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Toro Distributor.
- 25.** To reduce potential fire hazard, keep the engine free of excessive grease, grass, leaves and accumulations of dirt. Never wash a warm engine or any electrical parts with water.
- 26.** Be sure machine is in safe operating condition by keeping nuts, bolts and screws tight. Check the blade mounting bolts and nuts frequently to be sure they are tightened to specification.
- 27.** Make sure all hydraulic line connectors are tight, and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- 28.** Keep body and hands away from pin hole leaks in hydraulic lines that eject high pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Hydraulic fluid escaping under pressure can penetrate skin and cause injury. Fluid accidentally injected into the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
- 29.** Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine and lowering cutting unit to the ground.
- 30.** If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing and other parts of the body away from the cutting unit blades and other moving parts.
- 31.** Do not overspeed the engine by changing governor settings. To be sure of safety and accuracy, have an Authorized TORO Distributor check maximum engine speed with a tachometer.
- 32.** Engine must be shut off before checking oil or adding oil to the crankcase.
- 33.** At the time of manufacture the cutting unit conformed to safety standards in effect for riding mowers. Therefore, to ensure optimum performance and safety, always purchase genuine TORO replacement parts and accessories to keep the Toro all TORO. NEVER USE "WILL-FIT" REPLACEMENT PARTS AND ACCESSORIES MADE BY OTHER MANUFACTURERS. Look for the TORO logo to assure genuineness. Using unapproved replacement parts and accessories could void the warranty of The Toro Company.

SAFETY AND INSTRUCTION DECALS

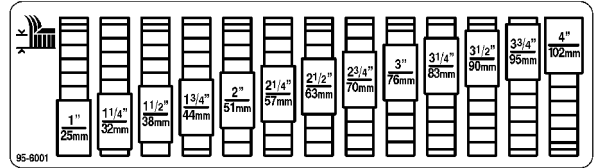
The following decals are installed on the machine. If any become damaged or illegible, replace it. The decal part number is listed below and in your parts catalog. Replacements can be ordered from your Authorized Toro Distributor.



On Sides of Right & Left Chambers
(Part No. 43-8480)



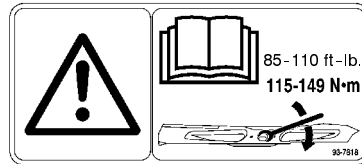
On Right & Left Chambers
(Part No. 93-0299)



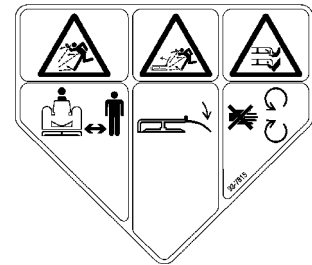
On Chamber 1 & 4 Castor Supports
(Part No. 95-6001)



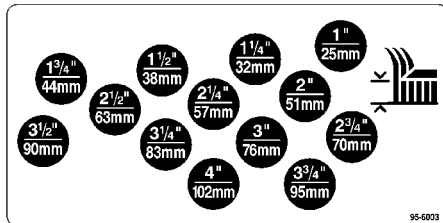
On Top of Chamber 2
(Part No. 88-1270)



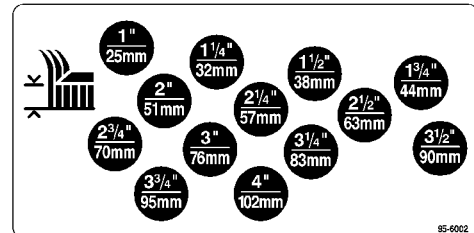
On Top of Chamber 3
(Part No. 93-7818)



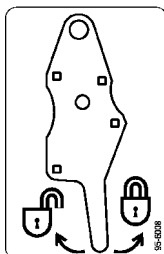
On Sides of Right & Left Chambers
(Part No. 93-7815)
Replaces Decal Part No. 43-8480 for CE



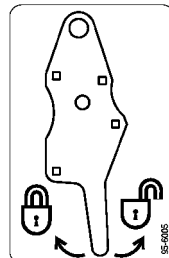
On Top of Rear Castor
(Chamber 1)
(Part No. 95-6003)



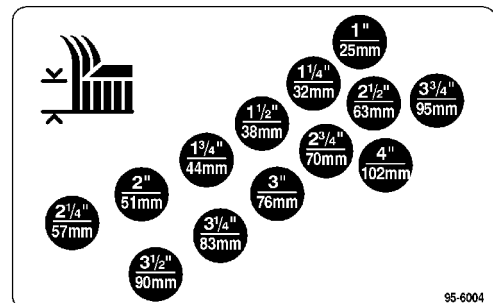
On Top of Rear Castor
(Chambers 2 & 4)
(Part No. 95-6002)



On Left Lift Arm
(Part No. 95-6008)



On Right Lift Arm
(Part No. 95-6005)



On Side of Rear Support
(Chamber 3)
(Part No. 95-6004)

SPECIFICATIONS

Deck Configuration: Out front deck with a right hand trim offset. Four individual chambers jointed for articulation. One blade per chamber.

Cutting Width: 82".

Chamber Housing: 12 GA. steel, 4.5" deep, welded construction and reinforced with 10 GA high strength formed plates.

Height—of—Cut (HOC): 1" to 4" by 1/4" increments.

Blade Size: Four 22" long by 2.50" wide by .25" thick heat treated steel with formed parallel sails.

Blade Overlap: 2" in the flat configuration.

Blade Drive: Hydraulic drive via a PTO driven high efficiency gear pump on the traction unit integrated hydrostatic transaxle (IHT). Four integrated spindle motors operated in a series configuration through SAE—10 (.625) high pressure wear resistant hoses with high density polyethylene protective tubing. Spindle motor is a high efficiency pressure balanced gear motor with a direct drive to the spindle shaft. Spindle supported by two tapered roller bearings on a 1.25" diameter shaft. Hydraulic braking valve set to 600 psi to achieve a complete blade stopping time of 5 seconds or less from full engine (PTO) speed.

Blade Speed: 15,724 feet per minute tip speed (2730 rpm spindle speed) at 2795 rpm on diesel models.

Suspension & Castor Wheels: Five front castors and three rear castors, consisting of 8" pneumatic wheels with sealed ball bearings. One rear link suspended from the right lift arm. Hydraulic counter balance and lift system designed integral with deck for maximum floatation.

Anti—Scalp Features: 11" diameter anti scalp cups located .75" below each blade. Adjacent chambers pivot freely about two independent 60° opposed hinges down —20° and up +20°. 1" diameter anti—scalp/wear skids located on each outside chamber.

Discharge: Evenly dispersed rear discharge between the outside width of the deck with partial recycling rear baffles.

Lift/Transport: 3/16" Galvanized steel cables from outside chambers to nearest lift arm actuated via a lever on the lift arms. Complete deck is lifted via the traction unit lift system.

Counter—Balance: Recommended operating counter balance pressure of 125 psi set by an adjustable counter balance valve on the traction unit.

Overhang/Trim: Deck is offset to the right of the traction unit to provide overhang of 21" on the right and 8.25" on the left with deck in a flat configuration. Uncut circle is 16 inch on right with no brakes.

Covers: No complete deck covers required. Hydraulic hoses covered per ANSI/ISO standards.

Connect/Disconnect: Use existing GM 3000 style of quick attach lift arm system. For ease of cleaning and maintaining oil cleanliness, the hydraulic lines use flush face quick couplers for pressure supply line, return line, braking sense line, and motor case drain line.

Sound Levels: Operator ear to be ≤ 90 dBA per SAE measuring standards.

Safety: Deck and traction unit to comply with ANSI B71.4—1990 and CE compliance.

Productivity: Mows up to 4.6 acre per hour at 5.5 mph

Approach Angle: Minimum approach angle (for trailering) of 11.5 at highest HOC setting.

Weight: 745 lbs.

ADDITIONAL EQUIPMENT

Hydraulic Kit (Required)	Model No. 30726
Remote Lock And Lift Kit	Model No. 30727
Wide Tire Kit	Part No. 100—1350
CE Service Latch Kit	Part No. 98—0688

Specifications and design subject to change without notice.

LOOSE PARTS

NOTE: Use this chart as a checklist to assure all parts have been received. Without these parts, total set-up cannot be completed.

Description	Qty.	Use
Castor Wheel Assembly	1	Mount right rear castor wheel assembly
Capscrew 1/2–13 x 5–1/2" lg.	1	
Locknut	1	
Clevis Pin	1	
Hair Pin Cotter	1	
Castor Wheel	1	Mount castor wheel to castor fork
Capscrew 5/8–11 x 5–3/4" lg.	1	
Lock Nut	1	
Guard	1	Mount to front axle
Ring	2	
Brake Shield	1	Mount to front axle
Decals	2	Apply for CE applications
Operator's Manual	1	Read Before Operating Machine.
Parts Catalog	1	
Registration Card	1	Fill Out And Return To Toro.

SET-UP INSTRUCTIONS

VERIFY LIFT ARM BALL JOINT ADJUSTMENT (Fig. 1 & 2)

1. Lift arm ball joints have been adjusted at the factory. The proper setting of left hand ball joint is 1.75" from end of lift arm to center of tapered stud (Fig. 1). The proper setting of right hand ball joint is 2.09" from end of lift arm to center of tapered stud (Fig. 2). These distances can be adjusted if deck alignment to traction unit is off or if the deck rubs against traction tires.

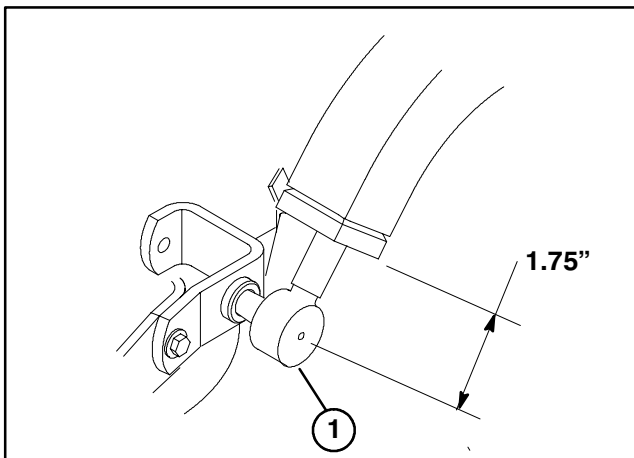


Figure 1
1. Left ball joint

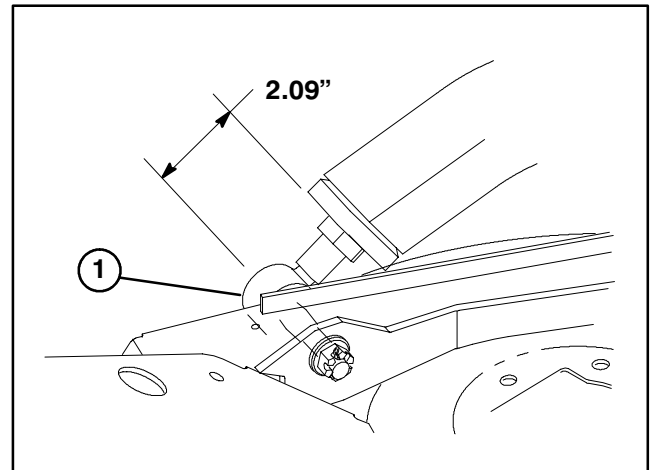


Figure 2
1. Right ball joint

MOUNT RIGHT REAR CASTOR ASSEMBLY (Fig. 3)

Note: Front castor wheel shipped secured to rear castor pivot arm.

2. Secure front of rear castor pivot arm to deck bracket with a 1/2–13 x 5–1/2" lg. capscrew and locknut.

SET-UP INSTRUCTIONS

3. Align the pivot arm holes with selected height-of-cut bracket holes in the deck frame, install clevis pin and secure with hairpin cotter.

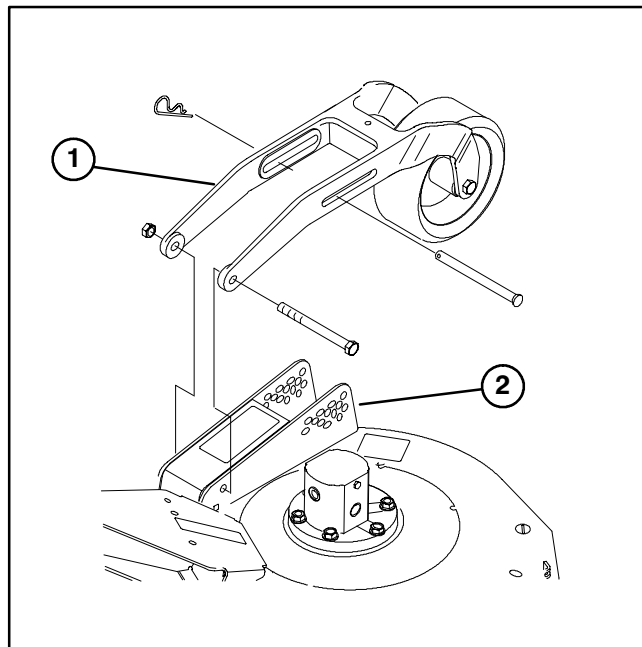


Figure 3

1. Rear castor pivot arm

MOUNT LEFT FRONT CASTOR WHEEL (Fig. 4)

1. Insert castor wheel assembly between castor fork and secure in place with 5/8-11 x 5-3/4" lg. capscREW and locknut. Torque to 55 ft-lb.

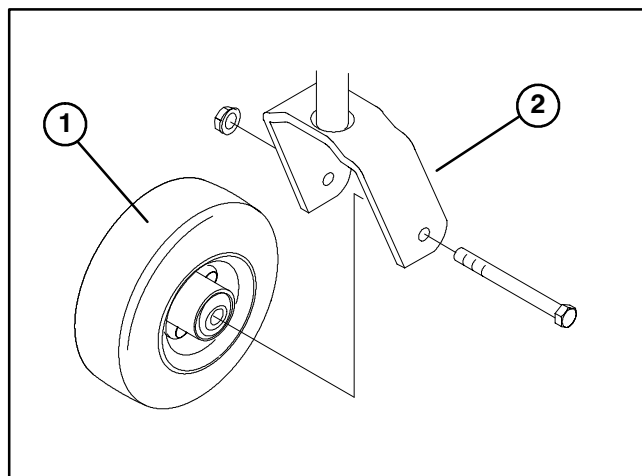


Figure 4

1. Castor wheel
2. Castor fork

MOUNT REAR GUARD (Fig. 5)

1. Hook guard rings into holes in front axle as shown in figure 5.

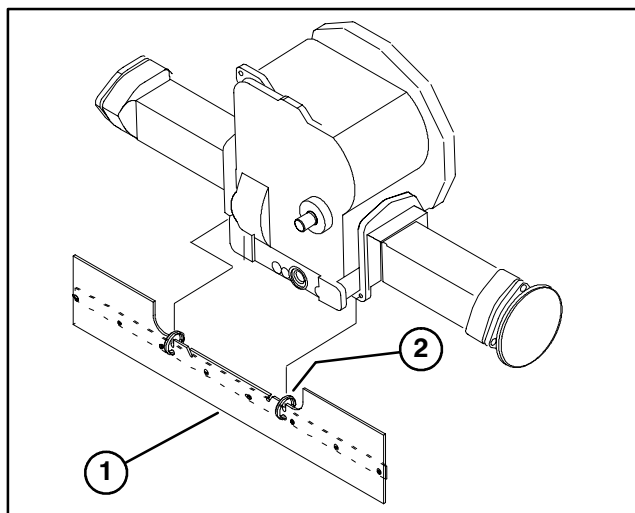


Figure 5

1. Guard
2. Ring

INSTALL BRAKE SHIELD (Fig. 6)

1. Remove (2) capscREWS and (4) washers securing outer edge of L.H. axle mounting plate.

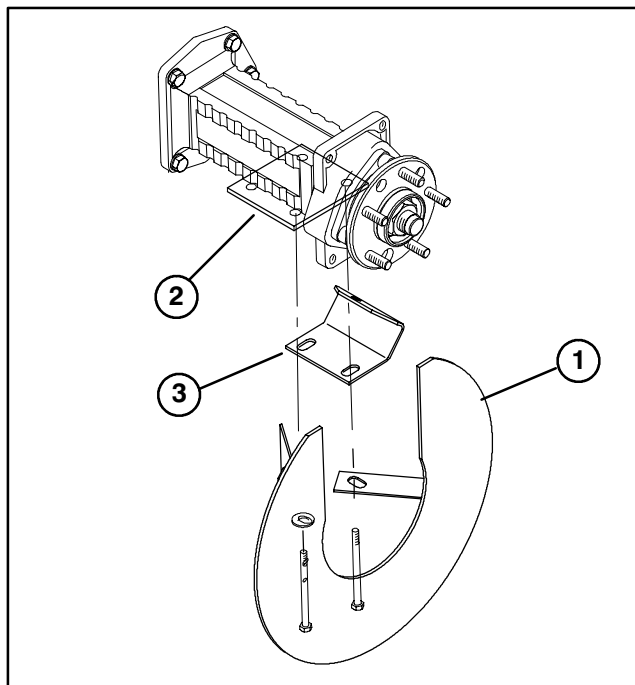


Figure 6

1. Brake shield
2. Axle mounting plate
3. Plunger switch bracket

Note: On some models, a plunger switch bracket may also be secured with (1) of the capscREWS so only (2) washers are used.

2. Mount mounting plate with (2) capscREWS and (2) washers. A washer is to be positioned between brake shield and mounting plate on each capscREW.

Note: When machine is equipped with a plunger switch bracket, eliminate rear washer when mounting brake shield.

SET – UP INSTRUCTIONS

MOUNT CUTTING UNIT TO TRACTION UNIT (Fig. 7–9)

1. Center traction unit in front of cutting unit on any flat hard surface.

2. Raise seat and open needle valve. This allows lift arms to float freely.

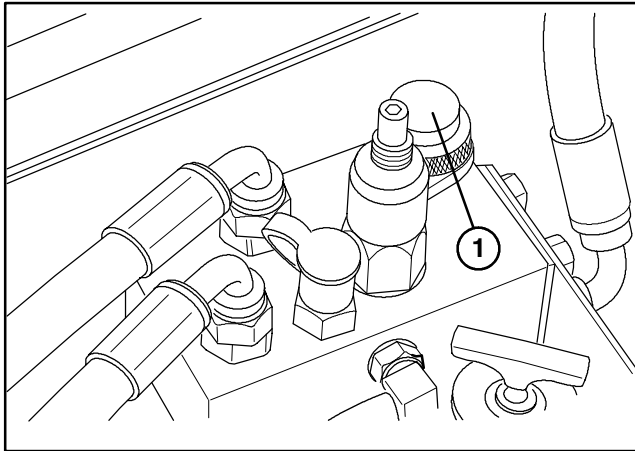


Figure 7

1. Needle Valve

3. Adjust lift arms heights making sure that the machined surface on top of each traction unit lift arm is parallel to ground (Fig. 8). (Raise or lower lift arm casting by pushing up or down from behind the front tires or using wrench in front of traction unit)

4. Check for dirt and debris on mating parts and clean as required.

5. Turn castor wheels so they point straight forward.

6. Secure first lift arm assembly to traction unit as follows:

A. Remove hair pin cotter and clevis pin securing latch cover to lift arm.

B. Pivot release lever upward.

C. Slide cutting unit lift arm onto traction unit lift arm, inserting shaft latch into slot in traction unit lift arm.

Note: If latch does not fall into slot in traction unit lift arm, raise or lower lift arm casting by pushing up or down from behind the front tires.

D. Pivot release lever downward and tighten securely by rotating clockwise.

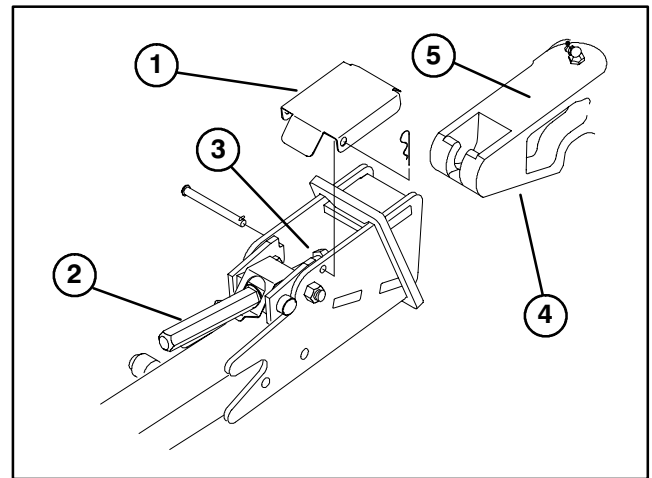


Figure 8

1. Latch Cover
2. Release Lever
3. Shaft latch

4. Traction Unit Lift Arm
5. Machined Surface

7. Install other lift arm on traction unit by rotating deck towards traction unit, aligning lift arm to traction unit arm and repeating step 6. If latch does not fall into slot in traction unit lift arm the arms are not lined up.

A. If lift arms on traction unit are not at the correct height for deck arms to slide on, push up or down on lift arm castings from behind the front tires until deck arm line up and slide on.

B. If lift arms on deck do not line up side to side. Rotate castor wheels side ways so deck moves side to side easier. Move deck side to side until lift arms line up and slide on.

8. Move deck from side to side to check for tightness and re-tighten latches, if required.

9. Install latch covers to lift arms and secure with clevis pins and hair pin cotters.

10. Connect hydraulic line quick couplers to hydraulic kit fittings on front of traction unit axle and oil filter assembly at locations shown in figure 9.

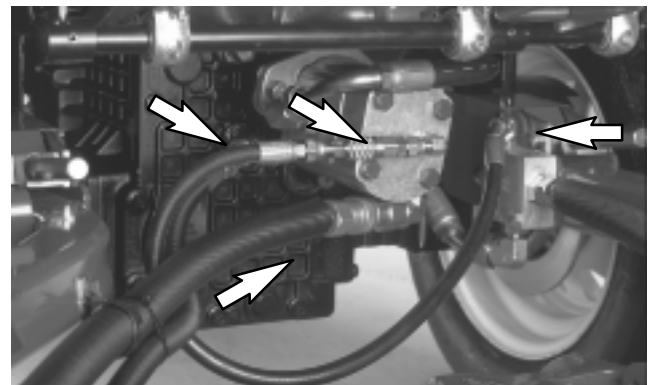


Figure 9

11. Close needle valve and lower seat.

SET – UP INSTRUCTIONS

GREASE CUTTING UNIT

Before the cutting unit is operated, it must be greased to assure proper lubricating characteristics: refer to Lubrication section of manual. Failure to properly grease the cutting unit will result in premature failure of critical parts. **Grease spindles until grease appears at bottom of spindle.**

ADJUST COUNTER BALANCE PRESSURE (Fig. 10)

Proper floatation of the Contour 82 deck requires an adjustment to the Traction Unit Counter Balance Logic Valve

Note: Use a pressure gauge for at least 300 psi.

1. Start engine and run at full rpm to allow full warm –up. Raise and lower deck a few times.
2. Install pressure gauge on test port located on top of traction unit manifold.
3. Loosen locknut on Logic Valve and adjust counterbalance pressure to 125–150 psi. Tighten locknut.

4. After completion of set –up, verify proper floatation of deck over undulations. Higher pressure will result in added traction, but may cause deck to float above turf while mowing undulations.

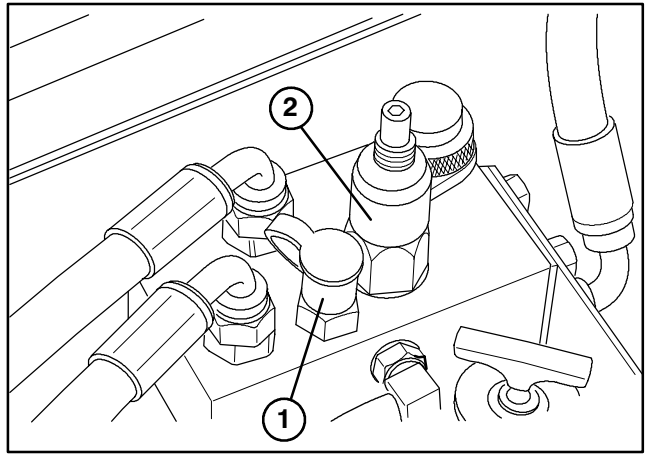


Figure 10

1. Test Port
2. Logic Valve

INSTALL REAR WEIGHT

Groundsmaster 3000 Series Traction Units with a Contour 82 Deck installed complies with ANSI B71.4–1990 Standard when equipped with rear weight. Use chart below to determine combinations of weight required. Order parts from your local Authorized Toro Distributor.

	Additional Rear Weight Required	Weight or Kit Part Number	Weight Description	Qty.
Groundsmaster 3000–D 4 Wheel Drive (Model 30302)	75 lb.	93–5996*	Weight Plate Kit (45 lb.)	1
		93–5983	Weight Plate (15 lb.)	2
Groundsmaster 3000–D 2 Wheel Drive (Model 30301)	115 lb.	95–7030	Rear Bumper Kit (100 lb.)	1
		93–5983	Weight Plate (15 lb.)	1
Groundsmaster 3000 2 Wheel Drive (Model 30300)	165 lb.	95–7030	Rear Bumper Kit (100 lb.)	1
		93–5983	Weight Plate (15 lb.)	1
		93–5995	Rear Wheel Kit (50 lb.)	1

* Weight Plate (93–5996) consists of three Weight Plates (93–5983)

** Models 30301 and 30300 are shipped from the factory equipped with (2) weight plates (Part No. 93–5983).

BEFORE OPERATING

CHECK HYDRAULIC FLUID (Fig. 11)

Check level of hydraulic fluid before engine is first started and daily thereafter.

1. Position machine on a level surface, raise the implement and stop the engine.
2. Unscrew dipstick cap from the filler neck and wipe it with a clean rag. Screw dipstick cap finger tight onto filler neck. Unscrew the dipstick and check level of oil. If level is not up to FULL mark on dipstick, add enough oil to raise level to mark. **DO NOT OVERFILL.** Refer to traction unit operator's manual for proper oil.
3. Screw dipstick filler cap finger-tight onto filler neck.
4. Lower the implement.

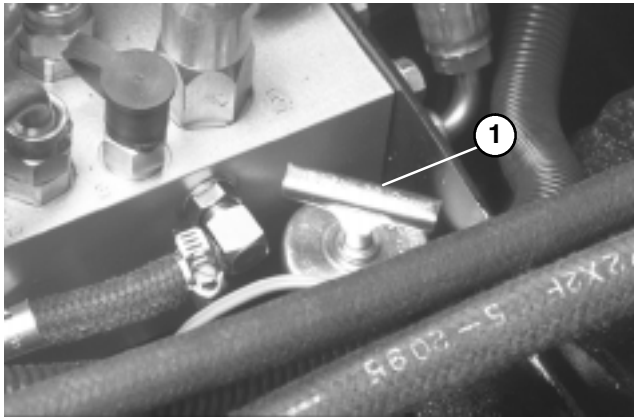


Figure 11
1. Dipstick cap

ADJUSTING HEIGHT – OF – CUT (Fig. 12 – 17)

The height-of-cut is adjustable from 1 to 4 inches in 1/4 inch increments.

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

FRONT CASTOR WHEELS

1. Remove H.O.C. cap from spindle shaft and slide spindle out of front castor arm. Slide spacers onto spindle shaft to get desired height-of-cut.

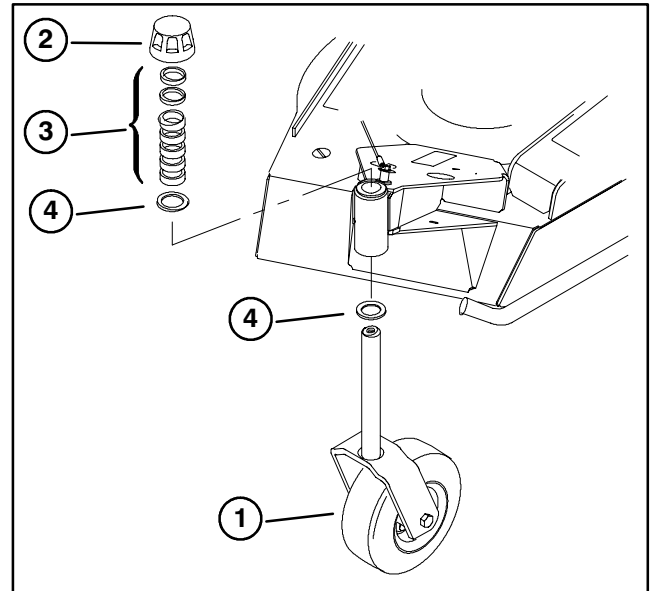


Figure 12
1. Front castor wheel
2. H.O.C. Cap
3. Spacer
4. Washer

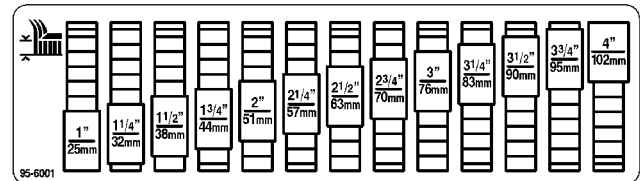


Figure 13

2. Push castor spindle through front castor arm install remaining spacers onto spindle and install HOC cap to secure assembly.

REAR CASTOR WHEELS

1. Remove hairpin cotter and cotter pin securing rear castor pivot arm to deck bracket.

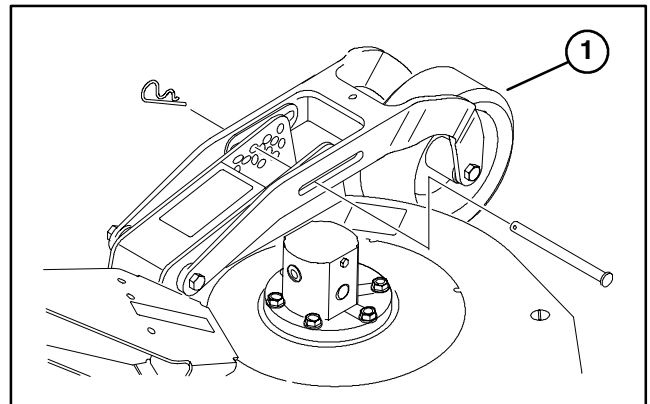


Figure 14
1. Rear Castor Pivot

2. Align the pivot arm holes with selected height-of-cut bracket holes in the deck frame, install cotter pin and secure with hairpin cotter.

BEFORE OPERATING

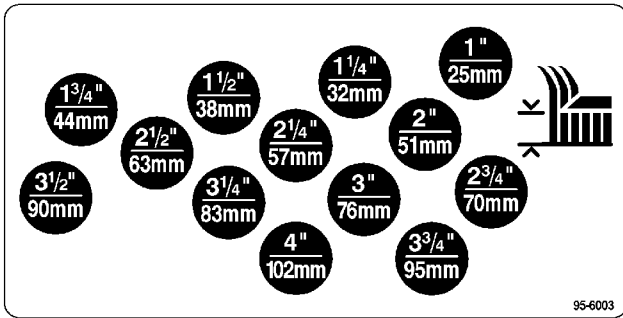


Figure 15

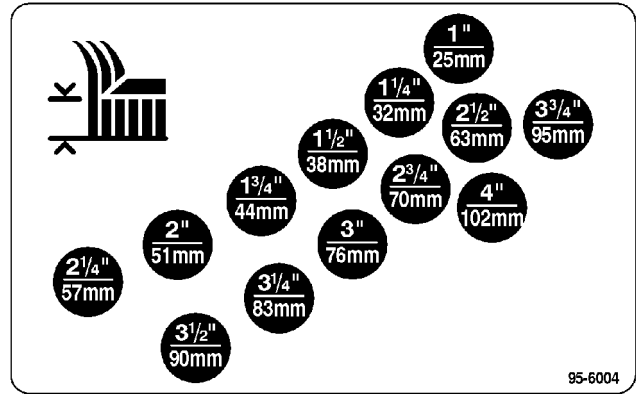


Figure 17

REAR DECK CHAIN

1. Remove hair pin cotter and clevis pin securing height-of-cut chain to chamber bracket.

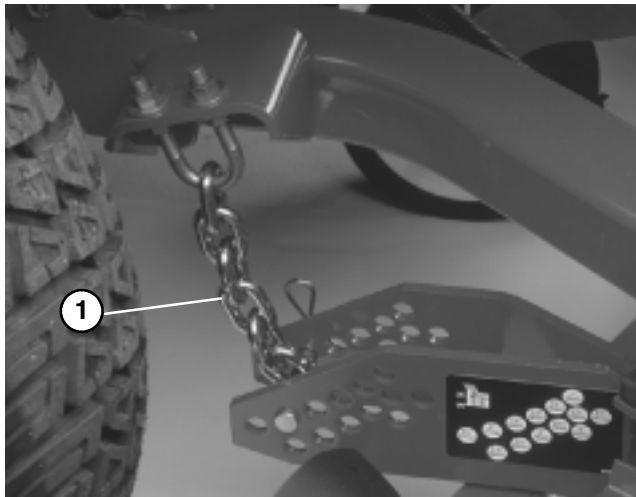


Figure 16

1. Height-of-Cut chain

2. Mount height-of-cut chain to desired height-of-cut hole with clevis pin and hair pin cotter.

3. Verify deck pitch on No. 3 chamber. Refer to Adjusting Deck Pitch.

ADJUSTING DECK PITCH (Fig. 16)

Deck pitch is the difference in height-of-cut from the front of the blade plane to the back of the blade plane. For the Contour 82, TORO recommends a blade pitch of 7/16". That is the back of the blade plane is 7/16" higher than the front.

1. Position machine on a level surface on shop floor.
2. Set deck to the desired height-of-cut.
3. Rotate No. 3 chamber blade so it points straight forward.
4. Using a short ruler, measure from floor to front tip of blade. Then, measure from floor to rear tip of blade.
5. Subtract the front dimension from rear dimension to calculate your pitch.
6. To adjust pitch, start traction unit and raise deck to highest possible position and turn off engine.
7. Loosen jam nuts on top or bottom of Height-of-Cut chain U-bolt.
8. Adjust other set of nuts to raise or lower rear of No. 3 chamber and attain correct deck pitch.
9. Tighten jam nuts.
10. Lower deck.

OPERATING INSTRUCTIONS

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. Height-of-Cut Bench Setting (Compared to Reel Mower)

The Contour rotary deck will cut the turf differently than a reel mower. Some areas with sharp undulations and valleys may get cut closer than a reel. It's recommended to set the height of cut $\frac{1}{4}$ inch higher than that of the reel mowers previously used in these areas.

The first few mowing intervals (4–6) may seem to require additional power to cut these tougher conditions. Some sharp undulations may appear yellow upon the initial cuttings, but the grass root system will adjust to the new maintained height of cut. The grass will condition itself to the effects of the Contour 82.

3. Starting Deck

Check traction unit engine rpm. It's best if set to top end of high idle tolerance. (Diesel models 2650 ± 100 , Gas models 3150 ± 100)

Engage PTO with engine at full throttle if new or cold traction unit. You can engage at $\frac{1}{2}$ to full throttle after 20–30 minutes of operating the deck (warm oil).

Engine will droop when PTO is engaged (1–2 seconds recovery).

Engage PTO with **Little to NO** traction pedal pressure. If facing uphill or traveling forward, the extra traction pedal pressure in the hydrostatic transmission will require more power and make the engine droop longer.

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

4. Deck Floatation

Adjust counter balance pressure to 100–150 psi. With a cold machine the deck will float better with lower counter balance pressure, but higher pressure is better for climbing hills.

Every time the deck is engaged, push the lift lever into the drop/float position. This assures the deck will follow the terrain well.

A new deck will have stiff pivot joints (ball joints). It is recommended to operate the deck over severe undulating conditions with the deck not engaged for 30 to 60 minutes prior to normal usage.

5. Select The Proper Height-of-Cut Setting To Suit Conditions

Remove no more than $\frac{1}{3}$ of the grass blade length or approximately one inch, whichever is least. In exceptionally lush and dense grass raise the height of cut $\frac{1}{4}$ to $\frac{1}{2}$ inch.

6. Mowing Over Sharp Undulations

As the Contour deck (at low height of cut settings, i.e. 1 to 1.5 inch) crests over sharp undulations, the scalp cups will come in contact with the ground.

To offset the power requirements to overcome the anti-scalp cup drag, do one of two things. First raise the height of cut of entire deck $\frac{1}{4}$ inch higher. This will make a substantial difference in power requirements. Or if needed, change the deck pitch by changing the three rear castor wheels and the rear height of cut chain by $\frac{1}{4}$ inch above the setting of the five front castor wheels. This is only recommended for very low height of cut, very lush conditions, and/or very sharp undulations.

7. Mowing In Extreme Conditions

Air is required to cut and re-cut grass clippings in mower housing. Do not set height of cut too low or totally surround housing by uncut grass.

Always try to have one side of the mower housing free from uncut grass, allowing air to be drawn into the housing.

When making an initial cut through center of uncut area, operate traction speed slower and back up if mower starts to clog.

8. Mow At Proper Intervals

Under most normal conditions you will need to mow approximately every 4–5 days. Remember that grass grows at different rates at different times. This means that in order to maintain the same height of cut you will need to cut more frequently in early spring.

If you are unable to mow for an extended period due to weather or other reasons, mow first with the height of cut at a higher level, then mow again 2–3 days later with the lower height of cut setting.

9. Always Mow With Sharp Blades

A sharp blade cuts cleanly and without tearing or shredding the grass blades like a dull blade. Tearing and shredding causes the grass to turn brown at the tips which impairs growth and increases susceptibility to diseases. Refer to Inspecting and Sharpening Blade section of manual.

10. Stopping Deck

If forward motion has to be stopped while cutting, a clump of grass clippings may be deposited on the turf. Follow this procedure for stopping while cutting:

A. With deck engaged, move onto a previously cut area with relatively no slope.

B. Move traction to neutral, move throttle control lever to SLOW and turn PTO switch to OFF. If getting off traction unit, apply parking brake and rotate ignition key to OFF.

OPERATING INSTRUCTIONS

11. After Operating

To assure optimum performance, clean underside of mower housing after each use. If residue is allowed to build up in mower housing, cutting performance will decrease.

12. Deck Pitch

For the Contour 82 deck, Toro recommends a blade pitch of 7/16". A pitch less than 7/16" will result in more power required, smaller clippings and a chance of scalping very sharp undulations (Refer to Maintenance Section of manual).

TRANSPORT LEVERS (Fig. 18)

When transporting deck, lock transport levers.

1. Position machine on a level surface, lower the deck and stop the engine.
2. To lock transport levers:
 - A. Unhook and remove snapper pin.
 - B. Rotate transport lever to lock position.

C. Insert snapper pin through aligned holes.

D. Lock snapper pin.

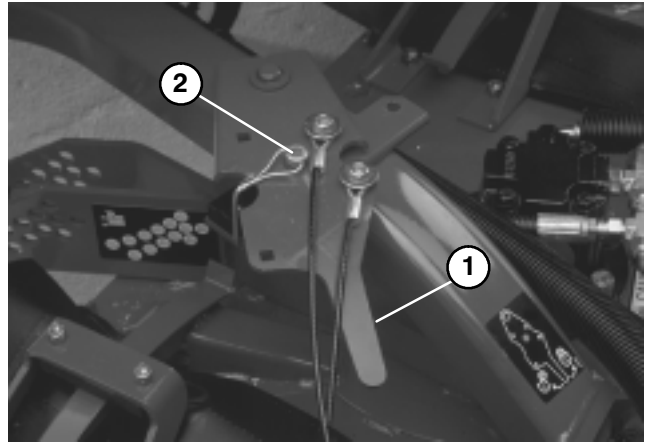


Figure 18

1. Transport lever
2. Snapper pin

LUBRICATION

GREASE BEARINGS AND BUSHINGS

(Fig. 19)

The cutting unit must be lubricated regularly. If machine is operated under normal conditions, lubricate castor bearings and bushings with No. 2 general purpose lithium base grease or molybdenum base grease, after every 50 hours of operation.

Grease spindles until grease appears at bottom of spindle. Lubricate fittings immediately after every washing, regardless of the interval listed.

1. The cutting unit has (19) bearings and bushings that must be lubricated, and these lubrication points are: front castor shaft bushings (5), chamber pivots (12) and right and left push arm ball joints (2).

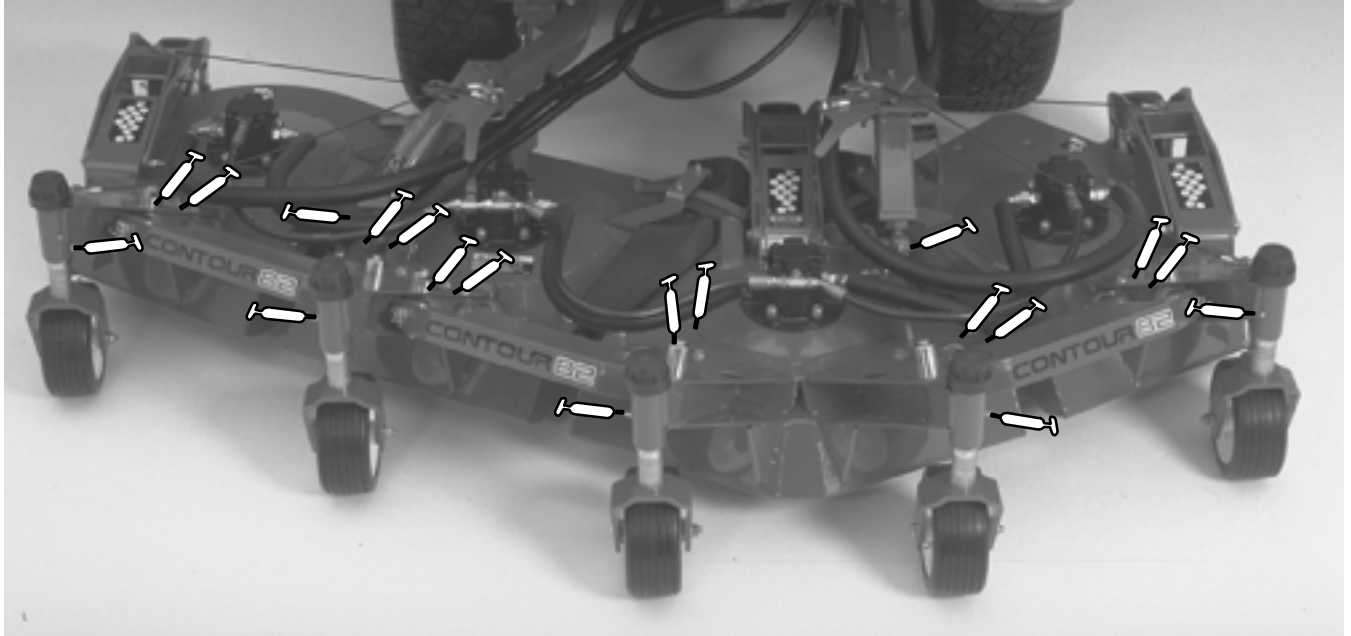


Figure 19

MAINTENANCE



CAUTION

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

DISCONNECT CUTTING UNIT FROM TRACTION UNIT (Fig. 20 –22)

Note: Implements are heavy and may require two people to handle.

1. Start traction unit and raise deck to highest possible position and turn off engine.
2. Remove hair pin cotter and clevis pin securing height-of-cut chain to rear height-of-cut brackets on chamber 3.

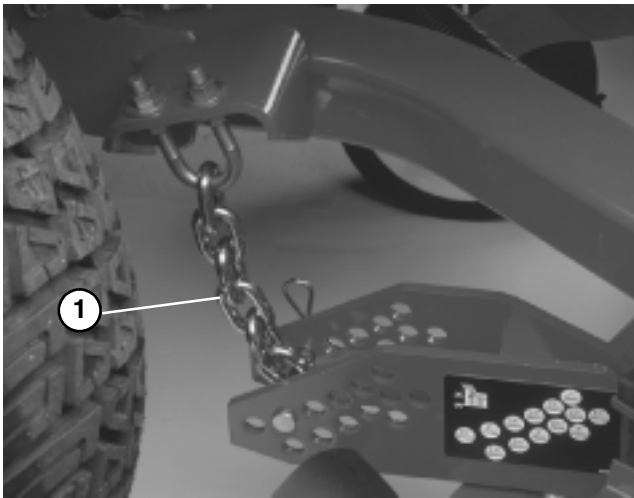


Figure 20

1. Height-of-Cut chain

3. Rotate ignition key to run position and move lift lever forward to lower cutting unit.
4. Raise seat and open needle valve. This allows lift arms to float freely.

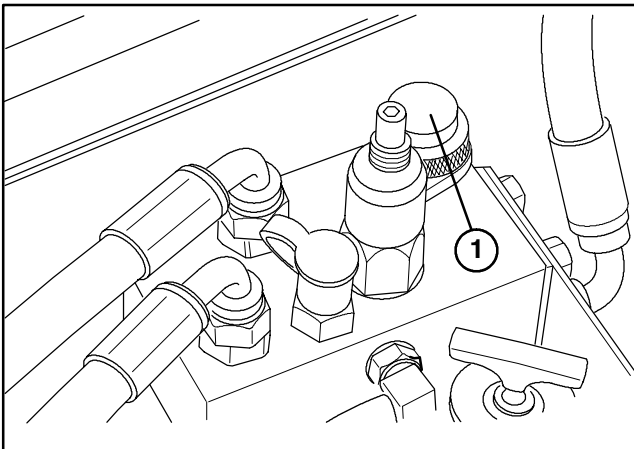


Figure 21

1. Needle Valve

5. Remove hair pin cotter and clevis pin securing latch cover to lift arm .
6. Loosen release lever by rotating it counterclockwise.
7. Pivot release lever upward and remove shaft latch from slot in traction unit lift arm.

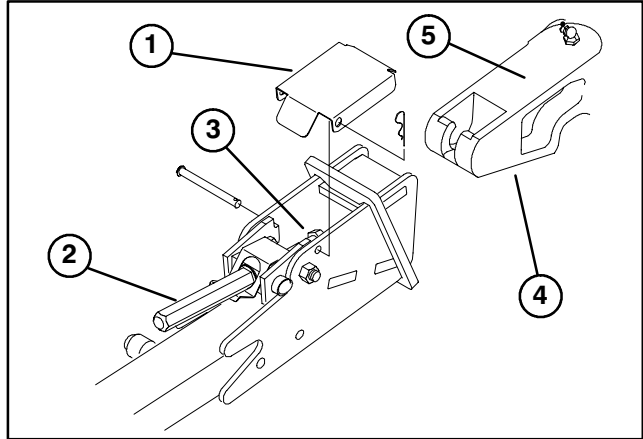


Figure 22

- | | |
|------------------|---------------------------|
| 1. Latch Cover | 4. Traction Unit Lift Arm |
| 2. Release Lever | 5. Machined Surface |
| 3. Shaft latch | |

8. Disconnect hydraulic line quick couplers from traction unit.
9. Stay clear of lift arms and move deck away from traction unit allowing lift arms to fall.
10. Secure hair pin cotter and clevis pin to height-of-cut chain for storage.
11. Close needle valve

CONNECT CUTTING UNIT TO TRACTION UNIT (Fig. 20–22)

1. Center traction unit in front of cutting unit on any flat hard surface.
2. Raise seat and open needle valve. This allows lift arms to float freely.
3. Adjust lift arms heights making sure that the machined surface on top of each traction unit lift arm is parallel to ground (Fig. 22). (Raise or lower lift arm casting by pushing up or down from behind the front tires or using wrench in front of traction unit)
4. Check for dirt and debris on mating parts and clean as required.
5. Turn castor wheels so they point straight forward.
6. Secure first lift arm assembly to traction unit as follows:
 - A. Remove hair pin cotter and clevis pin securing latch cover to lift arm.
 - B. Pivot release lever upward.
 - C. Slide cutting unit lift arm onto traction unit lift arm, inserting shaft latch into slot in traction unit lift arm.

MAINTENANCE

Note: If latch does not fall into slot in traction unit lift arm, raise or lower lift arm casting by pushing up or down from behind the front tires.

D. Pivot release lever downward and tighten securely by rotating clockwise.

7. Install other lift arm on traction unit by rotating deck towards traction unit, aligning lift arm to traction unit arm and repeating step 5. If latch does not fall into slot in traction unit lift arm the arms are not lined up.

A. If lift arms on traction unit are not at the correct height for deck arms to slide on, push up or down on lift arm castings from behind the front tires until deck arm line up and slide on.

B. If lift arms on deck do not line up side to side. Rotate castor wheels side ways so deck moves side to side easier. Move deck side to side until lift arms line up and slide on.

8. Move deck from side to side to check for tightness and re-tighten latches, if required.

9. Install latch covers to lift arms and secure with clevis pins and hair pin cotters.

10. Clean hydraulic coupler with a clean rag and connect hydraulic lines to traction unit.

11. Close needle valve and lower seat.

12. Start traction unit and raise deck to highest possible position and turn off engine.

13. Align height-of-cut chain on chamber 3 with hole for desired height-of-cut, install clevis pin and secure with hair pin cotter.

SERVICING FRONT BUSHINGS IN CASTOR FORKS (Fig. 23)

The castor forks have bushings pressed into the top and bottom of the chamber and after many hours of operation, the bushings will wear. To check the bushings, move castor fork back and forth and from side to side. If castor spindle is loose around the bushings, bushings are worn and must be replaced.

1. Lock transport levers, raise cutting unit to highest position, shut the engine off and engage the parking brake.

2. Remove front height-of-cut caps from castor forks and slide castor wheel assembly out of castor arm tube.

3. Insert pin punch into top or bottom of chamber and drive bushing out. Repeat for other bushing. Clean inside of bushing hubs to remove dirt.

4. Apply grease to inside and outside of new bushings. Using a hammer and flat plate, drive bushings into chamber housing.

5. Inspect castor shaft and fork for wear and replace if damaged.

6. Push castor shaft through bushings and secure with height-of-cut caps

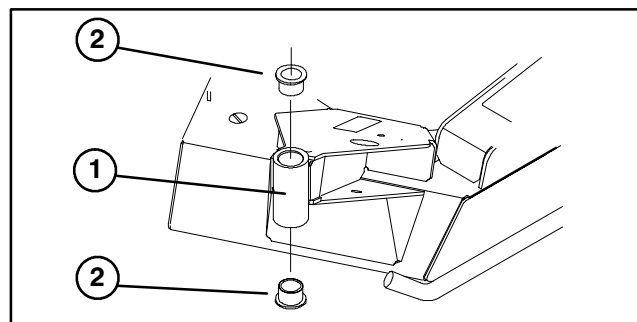


Figure 23

1. Castor arm tube
2. Bushing

SERVICING CASTOR WHEELS AND BEARINGS (Fig. 24–25)

1. Lock transport levers, raise cutting unit to highest position, shut the engine off and engage the parking brake.

2. Remove locknut from capscrew holding castor wheel assembly between front castor fork (Fig. 24) or rear castor pivot arm (Fig. 25) Grasp castor wheel and slide capscrew out of fork or pivot arm.

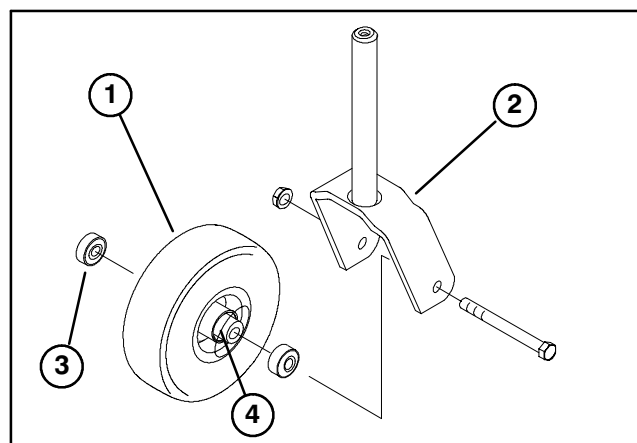


Figure 24

1. Castor wheel
2. Front Castor Fork
3. Bearing (2)
4. Bearing spacer

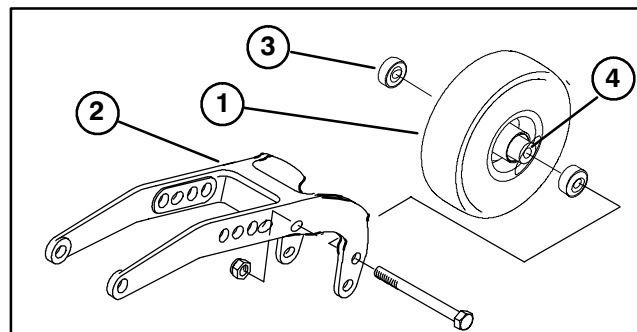


Figure 25

1. Castor wheel
2. Rear Castor Pivot Arm
3. Bearing (2)
4. Bearing Spacer

MAINTENANCE

2. Remove bearing from wheel hub and allow bearing spacer to fall out. Remove bearing from opposite side of wheel hub.
3. Check the bearings, spacer and inside of wheel hub for wear. Replace defective parts.
4. To assemble the castor wheel, push bearing into wheel hub. Slide bearing spacer into wheel hub. Push other bearing into open end of wheel hub to captivate the bearing spacer inside the wheel hub.
5. Install castor wheel assembly between castor fork and secure in place with capscrew and locknut. Torque to 55 ft-lb.

REMOVING CUTTER BLADE (Fig. 26)

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. Lock transport levers, raise cutting unit to highest position, shut the engine off and engage the parking brake.
2. Grasp end of blade using a rag or thickly padded glove. Remove blade bolt, anti-scalp cup and blade from spindle shaft.

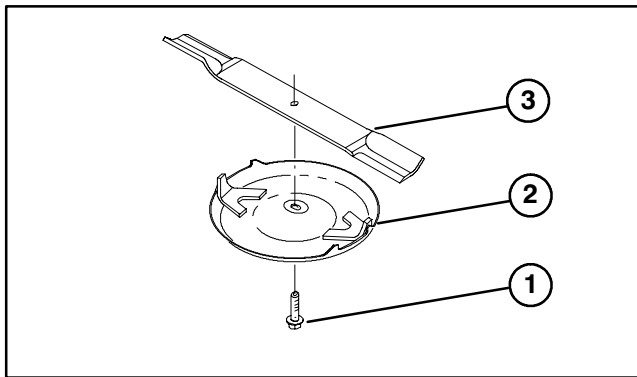


Figure 26

1. Blade bolt
2. Anti-Scalp Cup
3. Blade

3. Install blade (sail facing (up) toward cutting unit) with anti-scalp cup and blade bolt. Tighten blade bolt to 85–110 ft-lb.



WARNING

Do not try to straighten a blade that is bent, and never weld a broken or cracked blade. Always use a new blade to assure continued safety certification of the product.

INSPECTING AND SHARPENING BLADE

(Fig. 27 – 28)

1. Lock transport levers, raise cutting unit to highest position, shut the engine off and engage the parking brake.
2. Examine cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 27–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 wear is noticed (Fig. 27–B), replace the blade: refer to Removing Cutter Blade.

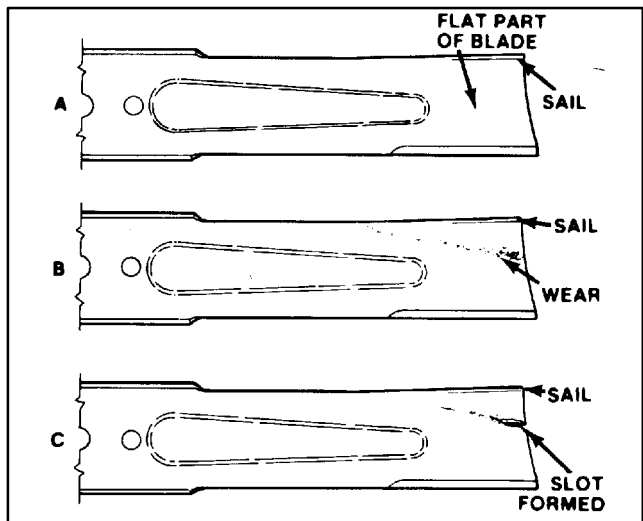


Figure 27



DANGER

If blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 27–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.

3. Inspect 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 for best performance (Fig. 28). The blade will remain balanced if same amount of metal is removed from both cutting edges.

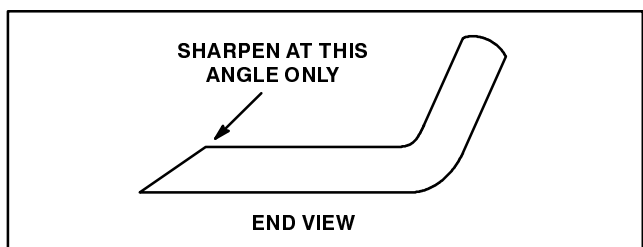


Figure 28

MAINTENANCE

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

5. Install blade retainer, blade (sail facing (up) toward cutting unit) with anti-scalp cup and blade bolt. Tighten blade bolt to 85–110 ft-lb.

CORRECTING CUTTING UNIT MISMATCH

If there is mismatch between the blades, the grass will appear streaked when it is cut. This problem can be corrected by making sure the blades are straight and all blades are cutting on the same plane.

1. Raise the height-of-cut to the highest position and lower deck to the floor.
2. Position machine on a level surface on the shop floor.
3. Shut engine off and engage the parking brake. Unlock transport levers.
4. Position the tip of an outer blade and adjacent blade tip as close together as possible at the intersection of the two cutting chambers. Note the height of the outer blade tip with respect to the adjacent blade tip.
5. Rotate outer blade 180° and note the height of the outer blade tip with respect to the adjacent blade tip. If the relative height changed by more than 1/8" after rotating blade, then outer blade is bent and should be replaced.

Note: When the blade cutting tips are rotated to their closest point, the blade in the forward chamber should be .20 ±.13" above the blade of the more rearward chamber. This is caused by the tilting of each motor spindle in each individual chamber. The blade rake is accomplished by tilting each spindle rather than tilting the entire deck. Even with this "apparent mismatch", the after cut appearance will not show a mismatch because each chamber overlaps the adjacent chamber by 2".

6. Repeat steps 3 and 4 until all pairs of adjacent blades have been checked at both blade tips. Note the relative difference in blade height at each blade intersection after replacing any bent blades. This height difference should be less than 1/8" for all adjacent blades.

7. Rotate an outer blade until the tip is positioned toward the side of the deck housing. Measure the distance from the bottom of the blade to the floor. Repeat the measurement on the opposite side of the deck. If the two distances differ by more than 1/4" proceed to step 8 and add shims as instructed.

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

SERVICING CHAMBER PIVOTS

(Fig. 29–31)

If cutting unit chamber pivot assemblies should ever have to be separated for service or repair, use the following procedure.

1. Pivot assembly dis-assembly.
 - A. Remove capscrews and nut from pivot casting.

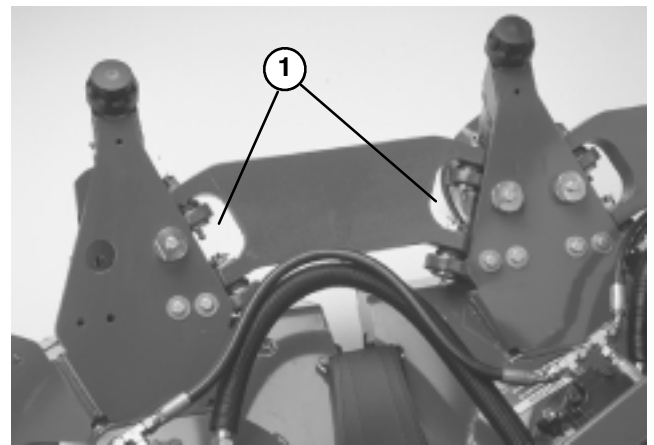


Figure 29

1. Chamber pivots

- B. Loosen capscrew locking eccentric cam in place.
 - C. Using a 1/2" diameter drive pin, drive pilot pin 3/8" to 1/2" into pivot casting.
 - D. Slide pivot assembly out of chamber housing.
2. Ball joint removal from pivot assembly
 - A. Remove the lock nuts from the ball joint studs.
 - B. Separate span casting from ball joints, Using an expansion fork and soft (lead) hammer.
 - C. Slide tapered sleeve out of span casting, and save this part.

MAINTENANCE

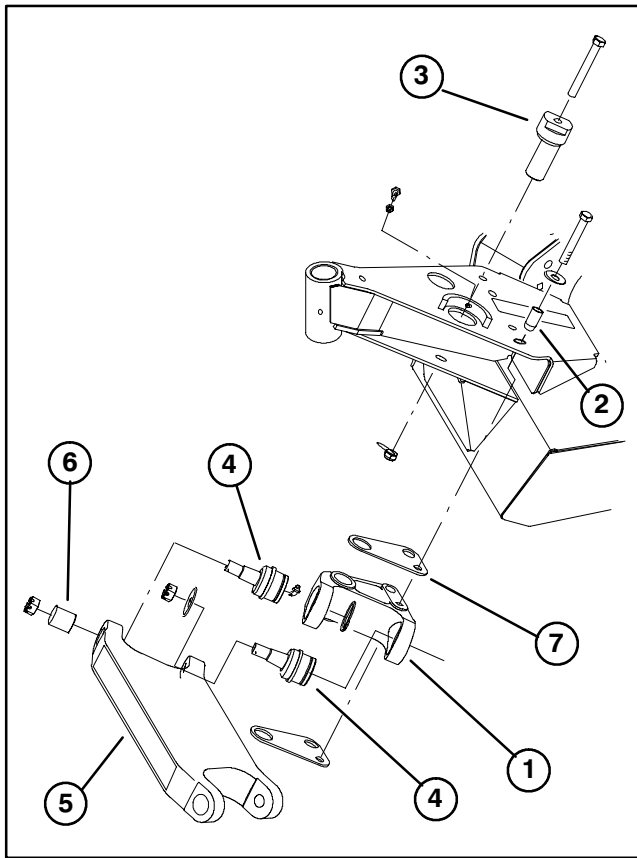


Figure 30

- | | |
|------------------|---------------------|
| 1. Pivot casting | 5. Span casting |
| 2. Pivot pin | 6. Tapered sleeve |
| 3. Eccentric cam | 7. Pivot spacer (2) |
| 4. Ball joint | |

D. Remove retaining rings from back side of ball joints.

E. Using a press, push ball joints out of pivot casting. The front (top) ball joint should be removed first.

3. Pivot assembly re-assemble.

A. Press ball joints into pivot casting. Bottom ball joint first.

B. Insert and orientate grease fittings to face upward.

C. Install retaining rings on back side of ball joints.

D. Clean any debris, oil, or dirt from tapered joints on span casting and tapered sleeve. Any nicks should be filed off.

E. Install pivot casting into chamber housing with spacer plate on top and bottom of pivot casting.

F. Install pilot pin into 5/8" diameter "pivot" hole and drive flush with top surface of chamber housing.

G. Install eccentric cam through assembly with identification mark facing forward. Use a small

amount of anti-seize compound on the diameter interface between eccentric cam and pivot casting.

H. Install 7/16 grade 8 fasteners (and thick washers) and tighten assembly such that eccentric cam can still rotate pivot casting in chamber housing.

I. Install span casting over ball joints in pivot casting.

J. Use a soft mallet, tap tapered sleeve into place in top ball joint position.

K. Torque ball joints as follows;

IMPORTANT: Failure to torque ball joints as follows can result in premature wear of ball joints due to pre-load applied to ball joint sockets.

Bottom ball joint nut	50 ft-lbs.
Top ball joint nut	50 ft-lbs.
Bottom ball joint nut	150 ft-lbs.
Top ball joint nut	150 ft-lbs.

NOTE: It is not recommended to use slotted nuts on ball joints due to the need to over tighten or back-off slotted nuts and to align cross holes for use with a cotter pin.

4. Adjustment of Chamber Pivots.

A. Set deck to its maximum height of cut (4").

B. Place the deck on a level surface with the lock and lift cables in the unlocked position.

C. Tighten capscrew against the eccentric cam, then, back off 1/2 turn.

D. Use two 1-1/4" wrenches on the eccentric cam to rotate simultaneously. Verify that identification mark on top of each eccentric cam is facing forward.

E. Rotate adjacent blades until cutting edge tips are aligned directly across from each other as shown in figure 31.

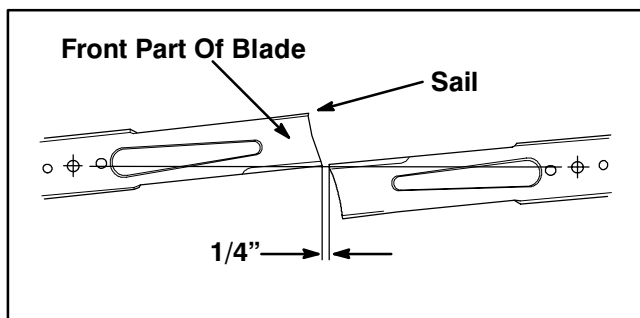


Figure 31

F. Rotation of outboard eccentric cam will primarily effect blade gap and inboard eccentric cam will primarily effect chamber front alignment.

MAINTENANCE

G. Rotate eccentric cam's until blade tips are **touching** each other and chamber fronts are aligned parallel.

H. Apply a small force (10–15 lbs) to back of chambers. Be sure non-rotating rear castors are free to slide along floor. This will remove any back-lash in system.

I. Rotate outboard eccentric cam until blade tips are $.25 \pm .03$ inches apart.

J. Tighten capscrew against eccentric cam's. Secure jam nut against the threaded "C" shaped wall.

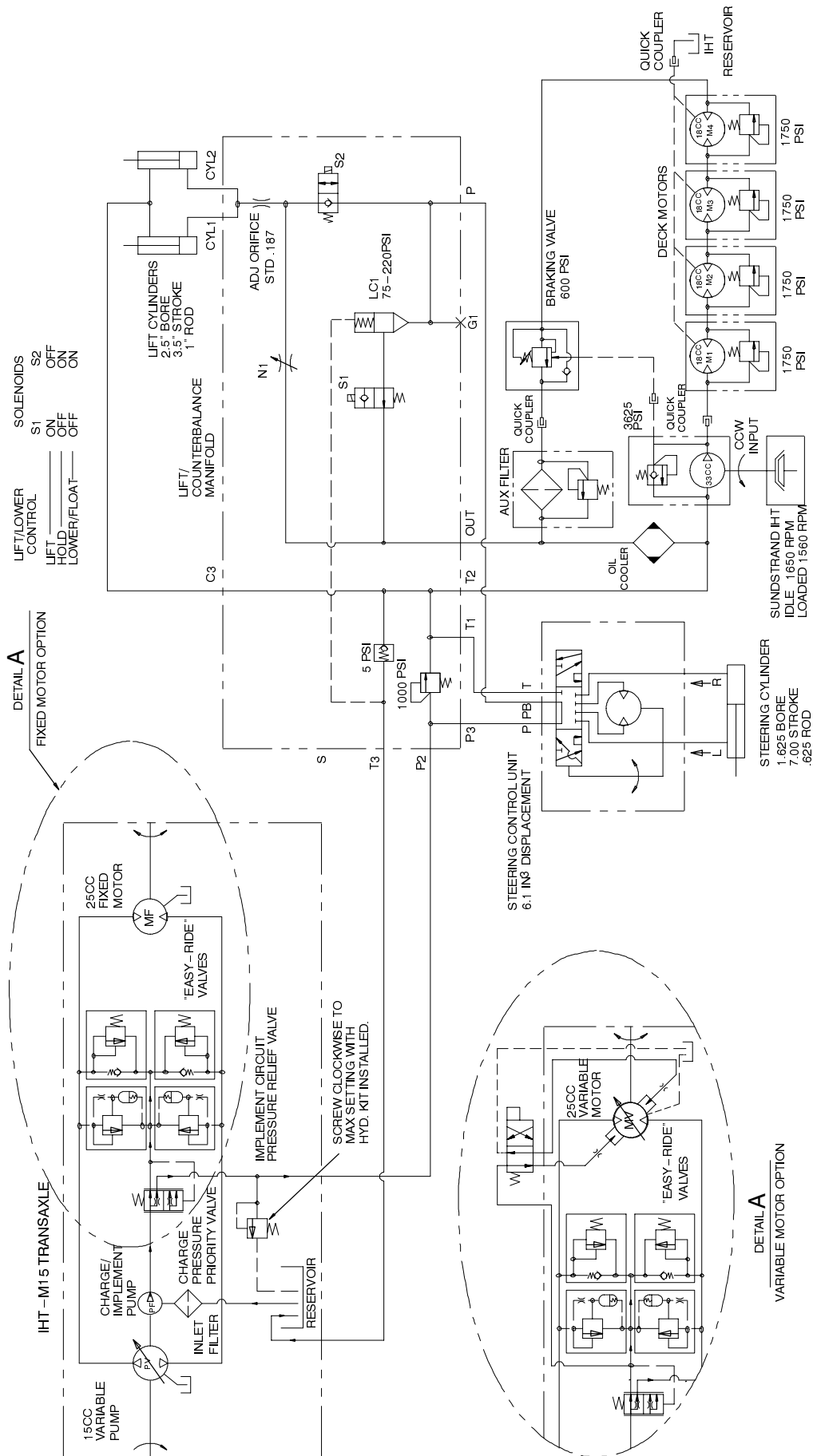
K. Secure 7/16 grade 8 capscrews and nut on pivot casting to 80 ft-lbs. in the following order:

Capscrew and nut through the eccentric cam.

Capscrew without pilot pin.

Capscrew with pilot pin (pivot point of casting).

HYDRAULIC SCHEMATIC



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 back top of #2 chamber. 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.



The Toro General Commercial Products Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your 1996 or newer Toro Commercial Product ("Product") purchased after January 1, 1997, to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with hour meter

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists.

If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
612-888-8801
800-982-2740
E-mail: commercial.service@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your operator's manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories.
- Product failures which result from failure to perform required maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent or reckless manner.
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, reels, bedknives, tines, spark plugs, castor wheels, tires, filters, belts, etc.

- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part.

Parts replaced under this warranty become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use factory remanufactured parts rather than new parts for some warranty repairs.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations 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.

Note regarding engine warranty: The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement printed in your operator's manual or contained in the engine manufacturer's documentation for details.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer. If all other remedies fail, you may contact us at Toro Warranty Company.