FORM NO. 3317–986 GB

TORO®

44" CUTTING UNIT OPERATOR'S MANUAL

FOR PROLINE 118/120
Model 30546—6900001 & Up

SPECIFICATIONS

Width of Cut: 44 in. (1.12 m).

Height-of-Cut: Adjustable from 1" to 4" (25 to 102 mm) in 1/2" (13 mm) increments.

Cutter Blades: Three heat-treated steel blades, each 3/16 in. (4.8 mm) thick and 15-1/2 in. (39.4 cm) long.

Pneumatic Wheels: 8 in. (20.3 cm) diameter with greaseable roller bearings (inflation 10-15 P.S.I.).

Weight: 187 lb. (73 kg)

Unit Drive System: Belt drive from implement jackshaft to right angle gear box. Belt drive to all spindles. Spindles have replaceable greaseable ball bearings. Cone-shaped spindle housings.

ADJUSTING HEIGHT OF CUT

The height of cut is adjustable from 1 to 4 inches (25 to 102 mm) in ½ inch (13 mm) increments by relocating four clevis pins in different hole locations in the brackets at each corner of the cutting unit (Fig. 1).

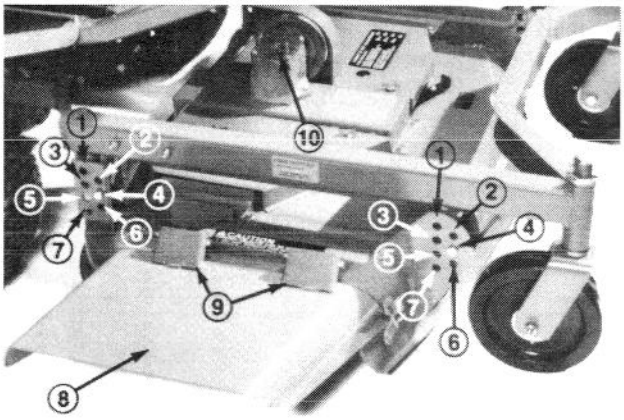


Figure 1

1. 1 in. {25 mm)
2. 1-1/2 in. {38 mm)
3. 2 in. (51 mm)
4. 2-1/2 in. (64 mm)
5. 3 in. (76 mm)
6. 3-1/2 in. {89 mm)
7. 4 in. (102 mm)
8. Grass deflector
9. Spring hinges
10. Gearbox

NOTE: All four pins should be in identical locations to prevent any operating and cutting difficulties.

GRASS DEFLECTOR

⚠ CAUTION

The grass deflector (Fig. 1) is a safety device that diverts grass and other foreign objects being discharged downward. Without the deflector mounted on the cutting unit, and the spring loaded hinges holding deflector in its down position, the blades could hurl grass and foreign objects out the discharge opening with enough force to cause injury or property damage. If the grass deflector or spring hinges are worn, broken or damaged, repair or replace the affected part(s). Never operate the cutting unit without the deflector mounted on the cutting unit. Always be sure the deflector chute is in the lowest possible position.

LUBRICATION MAINTENANCE

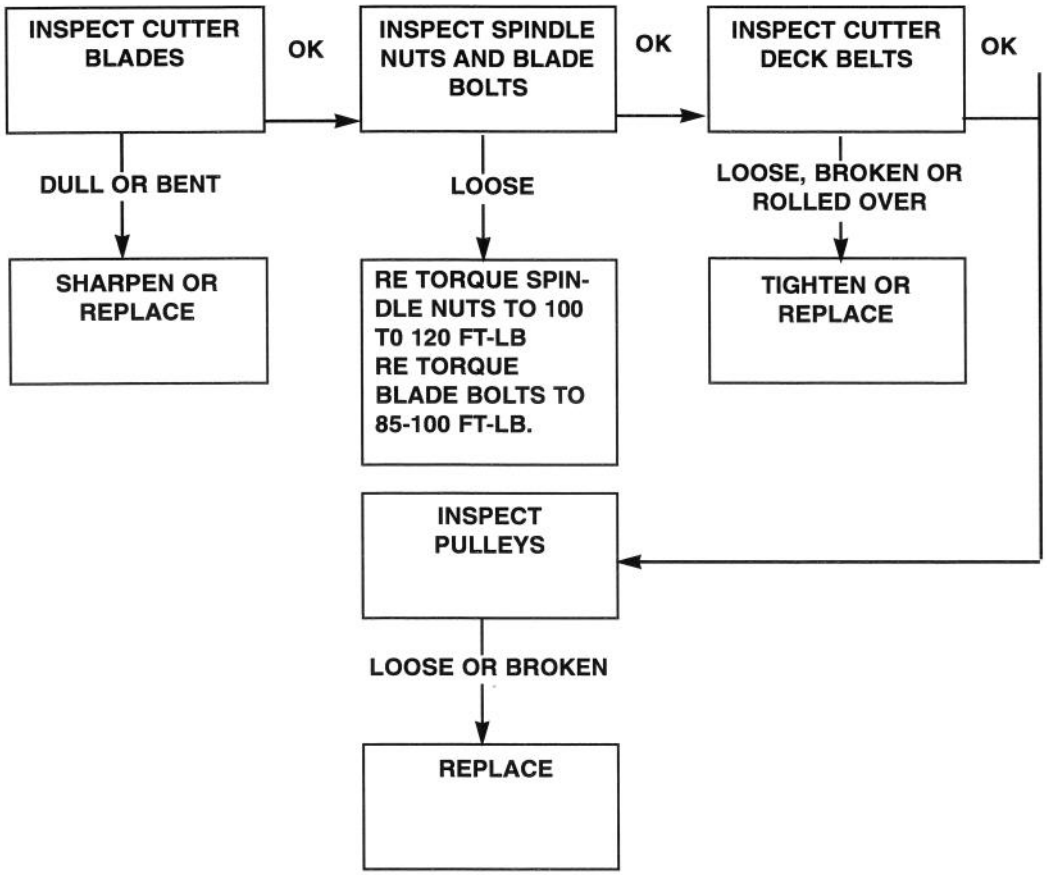
GREASE BEARINGS, BUSHINGS, AND GEAR CASE

1. The cutting unit must be lubricated regularly. If the machine is operated under normal conditions, lubricate castor bearings and bushings with No. 2 general purpose lithium grease or molybdenum base grease, after every 8 hours of operation or daily, whichever comes first. All other bearings, bushings and the gear box must be lubricated after every 50 hours of operation.

2. After every 50 hours of operation, lower the cutting unit so the castor wheels are on a level surface. Be sure all height-of-cut pins are in the same hole locations. Clean the area around the gear box cover (Fig. 1) to prevent contaminants from entering the gear box. Remove the screws securing the cover to the gear box and remove the cover. Check the level of lubricant in the gear box. If the level is low, add SAE E.P. 90 weight oil until the oil level is up to the horizontal shaft (input) of the gear box. Check the condition of the gasket and replace it if it is damaged or worn.

CUTTING UNIT TROUBLESHOOTING

UNIT WILL NOT CUT OR CUTS POORLY



CUTTING UNIT MAINTENANCE

SERVICING BUSHINGS IN CASTOR ARMS

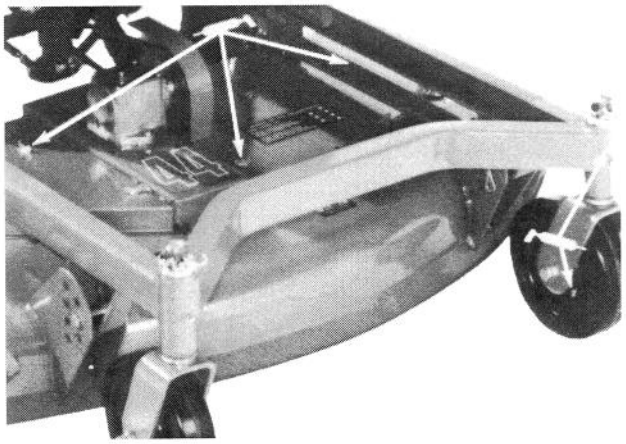


Figure 2

The castor arms have bushings pressed into the top and bottom portion of the tube. 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 the castor spindle is loose inside the bushings, the bushings are worn and must be replaced.

1. Raise the cutting unit so its wheels are off the floor and put blocks under it so it cannot fall accidentally.

2. Remove the lynch pin and thrust washers from

the top of the castor spindle.

3. Pull the castor spindle out of the mounting tube. Allow the washers to remain on the 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 (Fig. 3). Also drive the other bushing out of the tube. Clean the inside of the tubes to remove dirt.

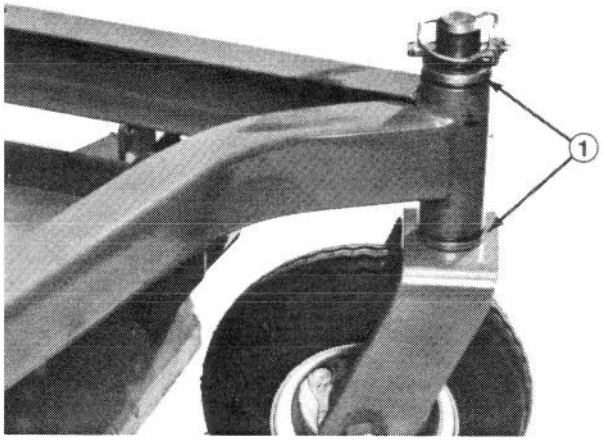


Figure 3

1. Bushings

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 spacers onto the spindle. Install lynch pin through the castor spindle to retain all parts in place.

IMPORTANT: When bushings are installed, the inside diameter may collapse slightly, and this may not allow the castor's spindle to be installed. If the castor spindle does not slide through new bushings and mounting tube, ream both bushings to an inside diameter of 1.126 inches {28.6 mm).

SERVICING CASTOR WHEELS AND BEARINGS

The castor wheel rotates on a high-quality roller bearing and is supported by a spanner bushing. Even after many hours of use, if 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 capscrew holding the castor wheel assembly between the castor fork (Fig. 4). Grasp the castor wheel and slide the capscrew from the fork.

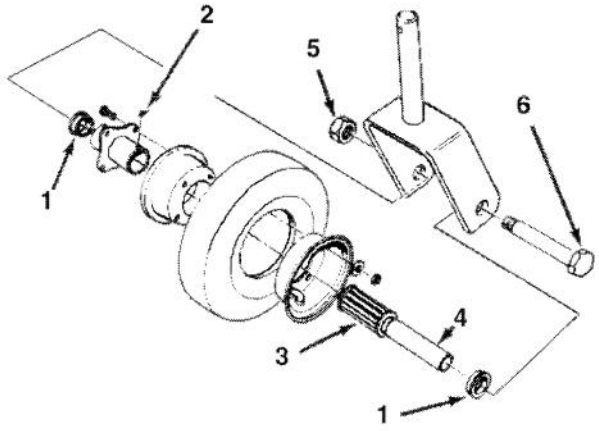


Figure 4

1. Bearing retainer
2. Grease fitting
3. Roller bearing
4. Spanner bushing
5. Locknut
6. Capscrew

Note: Account for the two bearing retainers (Fig. 4).

2. Tip the wheel to the side and allow the roller bearing and spanner bushing to fall out (Fig. 4).

3. Inspect the bearing, spanner bushing and inside diameter of the wheel for wear. Replace defective parts.

4. To reassemble parts, slide the spanner bushing through the roller bearing. Pack the bearing with no. 2 grease; then insert the bearing with the spanner bushing into the wheel.

5. Slide the bearing retainer onto the spanner bushing, and mount the castor wheel assembly between the fork and capscrew and locknut. Tighten the capscrew and locknut until the spanner bushing bottoms against the inside of the castor fork.

6. Pump more grease through the grease fitting on the wheel (Fig. 4) until the bearing is greased thoroughly.

CHECKING FOR BENT BLADES

1. Rotate each blade until the ends face forward and backward (Fig. 5). Measure from the inside of the cutting unit to the cutting edge at the front of the blade (Fig. 5), and remember this dimension.

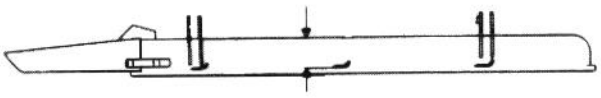


Figure 5

2. Rotate the opposite end of the blade forward. Measure between the cutting unit and cutting edge of the blade at the same position as in step 1. The difference between dimensions obtained in steps 1 and 2 must not exceed 1/8 of an inch (3 mm). If the dimension exceeds 1/8 of an inch (3 mm), replace the blade because it is bent.

REMOVING THE CUTTER BLADE

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.

⚠ 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 safety.

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

2. Install the blade with the sail facing toward the cutting unit with the blade bolt, lockwasher and cup. Tighten to 85- 11 0 ft-lb (11 5-148 Nm).

CHECKING THE SAIL AND SHARPENING THE CUTTER BLADE

Two areas must be considered when checking and servicing the cutter blade: one area is the sail, the other is the cutting edge. Both cutting edges and the sail (which is the turned up metal opposite the cutting edge) contribute to a good quality of cut. The sail is important because it pulls grass up straight to produce an even cut. However, the sail will gradually wear down during operation. This is normal. As the sail wears down, the quality of cut will degrade somewhat, even if the cutting edges are sharp.

The cutting edges of the blade must be sharp so the grass is cut rather than torn. A dull cutting edge is evident when tips of the grass appear brown and shredded. Sharpen the cutting edges to correct this condition.

1. Examine the cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 6-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 mower. If you notice wear (Fig. 6-B), replace the blade.

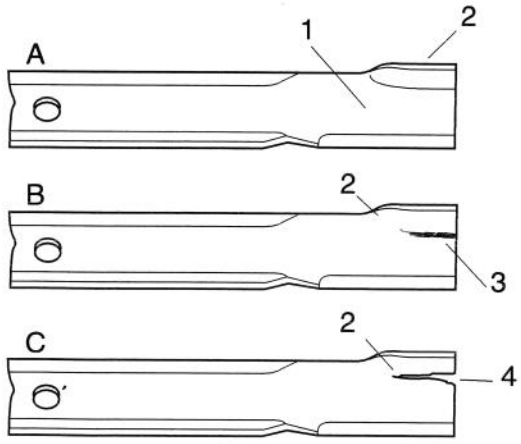


Figure 6

1. Flat part of blade
2. Sail
3. Wear
4. Slot formed

⚠ DANGER

If the blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 6-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 a bystander.

2. 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. 7). The blade will remain balanced if the same amount of metal is removed from both cutting edges.

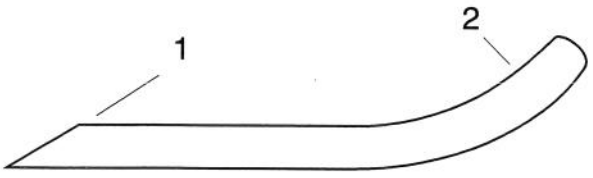


Figure 7—End View of Blade

1. Sharpen at original angle
2. Sail

Note: Remove the blades and sharpen them on a grinder. After sharpening the cutting edges, reinstall the blade with the blade bolt, lockwasher and cup. The blade sails must be toward the top of the deck. Tighten the blade bolt to 85–110 ft-lb (11 5–148 Nm).

CORRECTING CUTTING UNIT MISMATCH

If one cutter blade cuts lower than the others, correct as follows:

1. Check to make sure the front height-of-cut pins are resting properly on the frame cushions (Fig. 9).

2. Raise height-of-cut to the 31/2" (89 mm) or 4 in. (102 mm) position (Fig. 9).

3. Rotate the blades so tips line up with one another. Tips of the adjacent blades must be within 1/8 in.(3 mm) of each other. If the tips are not within 1/8 in. (3 mm) of each other, go to step 7 and add shims between the spindle housing and the bottom of the cutting unit.

4. Position all three blades in the "A" position (Fig. 8) and measure from the level surface to the bottom of the tip end of each blade (Fig. 8

5. Note the measurement attained at "A". Rotate blades to the "B" position (Fig. 8), and measure the distance of all blades to level surface. Note the dimensions (Fig. 9).

6. Rotate the blades to the "C" position, measure and note the distance measured (Fig. 8, 9).

7. Compare the measurements at the various positions. All dimensions must be equal within 1/4 in. (6 mm) from one another. The difference between dimensions must not exceed 1/4 in. (6 mm). If difference exceeds 1/4 in. (6 mm), go to steps 8 and 9 and add shims between the spindle housing and the bottom of the cutting unit.

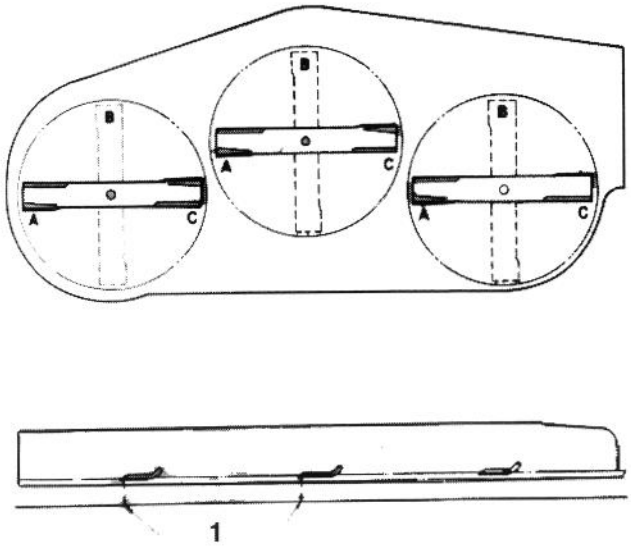


Figure 8

1. Measure from blade tip to level surface

8. 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 spindle housing and bottom of cutting unit. Continue checking the alignment of blades and adding shims until the tips of the blades are within the required dimension.

9. Equalize side to side measurements as follows:

   A. Cutting units that are usually operated at 1 to 2 in. (25 to 51 mm) height of cut should have the low side of the cutting unit raised. Remove the lynch pin securing the castor wheel on low end (Fig. 9) and remove the castor assembly.

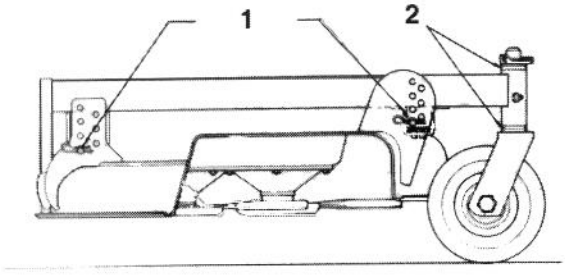


Figure 9

1. Highest height-of-cut setting
2. Thrust washers are required

   B. Transfer one thrust washer from the top side of the castor shaft to the lower side, install the castor assembly and compare the blade height of all blades; refer to items 3 through 7. Continue adding thrust washers if height still does not meet requirements.

   C. If the cutting unit is operated at 2 to 4 in. (51 to 102 mm) height of cut, lower the high side of cutting unit. Remove the lynch pin of the castor at the high end of the unit and remove the castor assembly (Fig. 9)

   D. Transfer one thrust washer from the lower side of the castor shaft to the top side, install the assembly and compare blade height of all blades; refer to items 3 through 7. Repeat the procedure if height still does not meet requirements.

   E. If height is within the specified dimension, install the lynch pin, set the height of cut to proper height and resume operation.

REPLACING THE GRASS DEFLECTOR

1. Remove the two capscrews, locknuts and springs securing the deflector mounts to the pivot bracket (Fig. 10).

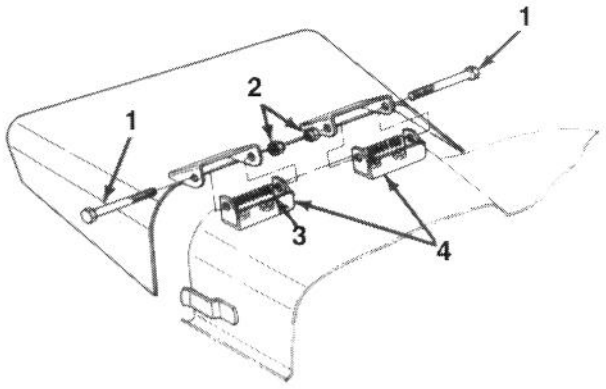


Figure 10

1. Capscrew
2. Locknut
3. Spring
4. Pivot brackets

2. To remove the pivot brackets, remove carriage bolts, lockwashers and nuts (Fig. 10).

3. Install the pivot brackets on top of the discharge opening with carriage bolts, lockwashers and nuts. The head of carriage bolts must be on the inside of the cutting unit.

4. Position the deflector mounts on the outside of the pivot brackets and secure the parts together with capscrews, locknuts and springs. Both locknuts must face each other. Tighten the locknuts until they are flush against the deflector pivots. Lift the deflector and allow it to drop to check spring tension. The deflector must be held firmly in the full downward position by spring tension. Correct if necessary.

ADJUSTING THE IDLER PULLEY

The idler pulley applies force against the belt so power can be transmitted to the blade pulleys. If the idler is not tensioned against the belt with sufficient force, maximum power will not be transmitted to the pulleys.

1. Remove the right and center belt covers by rotating the wing head studs. Remove the left cover by removing the mounting screws.

2. Remove the nut securing the spring anchor to the capscrew in the housing (Fig. 11). Lift the anchor from the capscrew and pull to increase belt tension. Correct belt tension is achieved when 30-40 lbs. of force is applied to the spring.

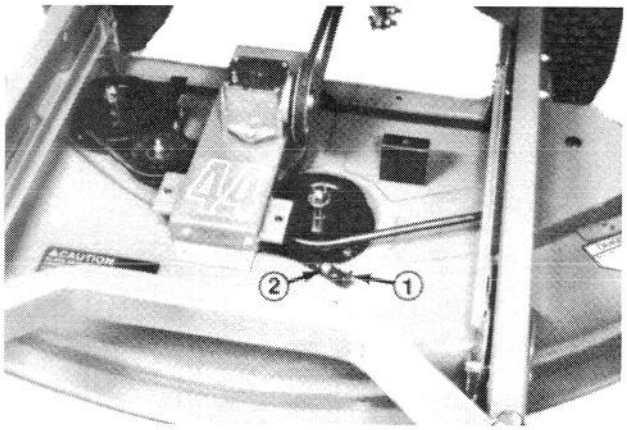


Figure 11

1. Spring anchor
2. Nut

3. Reinstall the spring anchor on the capscrew in the mounting hole and install nut.

4. Reinstall the belt covers.

REPLACING THE DRIVE BELT

The blade drive belt, tensioned by the spring-loaded idler, is very durable. However, after many hours of use, the belt will show signs of wear. Signs of a worn belt are: squealing when 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. Remove the belt covers by turning the wing-head studs on the right and center covers and removing the mounting screws on the left cover.

2. Remove the nut securing the spring anchor to the capscrew in the housing (Fig. 12). Lift the anchor off the capscrew and let the belt relax.

3. Remove the worn belt from the pulleys and slide one end of the belt under the gear box bracket.

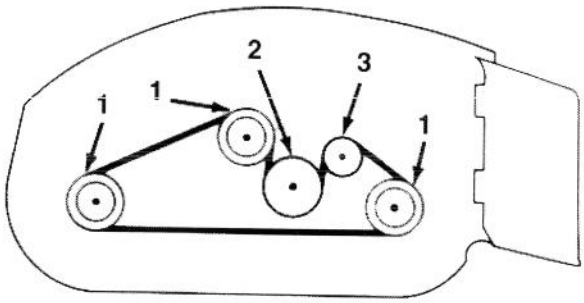


Figure 12—Belt Routing

1. Spindle pulley
2. Gear box pulley
3. Idler pulley

4. Install new belt around spindle pulleys, gearbox pulley, and idler pulley (Fig. 12).

5. Readjust belt tension.

6. Reinstall belt covers.

REPLACING A SPINDLE PULLEY

1. Remove covers from the cutting unit.

2. Remove the drive belt refer to *Replacing Drive Belt.*

   Note: Hold the spindle assembly together or block it up from the bottom of the cutting unit when removing nut and pulley because the spindle shaft may slide through the spindle housing.

3. Remove the nut retaining the pulley on the spindle shaft. Pull the pulley from the shaft.

4. Install the new pulley on the spindle shaft with a locknut. Tighten the nut to 100-120 ft-lb (135-162 Nm).

5. Reinstall the belts and covers.

REMOVING SPINDLES AND BEARINGS FROM THE SPINDLE HOUSING

1. Remove the pulley cover on top of the spindle housing to be serviced. Also remove the cover over the idler pulley.

2. Remove the drive belt, refer to *Replacing Drive Belt.*

3. Remove the locknut retaining the spindle pulley on the spindle shaft. Slide the pulley from the shaft. This will allow the spindle shaft to be removed from the spindle housing.

4. Remove the capscrews and nuts holding the spindle housing assembly and support ring against the cutting unit. Slide the spindle housing assembly out the bottom of the cutting unit.

5. If the spindle shaft will be replaced, remove the blade bolt securing the blade to the spindle. If not replacing the spindle shaft, the blade may be left on it.

6. Reposition the spacer and bearing in the spindle housing. Make sure bearings are positioned with their open side toward the spindle housing and the hole in the spacer is aligned with groove in the shaft.

7. Reinstall the spindle in the spindle housing. Make sure the bearings and spacers are properly positioned on the shaft.

8. Slide the pulley end of the spindle assembly through the hole in the cutting unit. Mount the spindle assembly in place with the support ring, capscrews and nuts (Fig. 13).

9. Push the pulley onto the spindle shaft, and retain parts together with locknut. Tighten the nut to 100–120 ft-lb (1 35 1 62 Nm) and turn the spindle shaft to be sure shaft rotates freely.

10. Grease the bearing with Mobilux No. 2 or general purpose Lithium grease until grease is visible at the lower seal.

11. Reinstall the belts and covers.

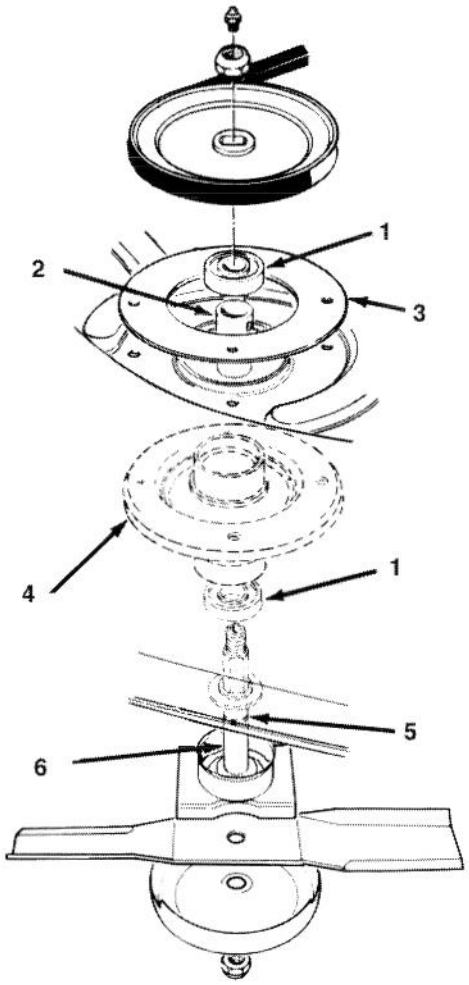


Figure 13

1. Bearing
2. Spacer
3. Support ring
4. Spindle housing
5. Shaft grove
6. Spindle shaft

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBERS

The cutting unit has two identification numbers: a model number and a serial number. These numbers are stamped into a plate. The cutting unit identification plate is located behind the right front caster wheel on carrier frame (Fig. 14). In any correspondence concerning the cutting unit, supply the model and serial numbers to assure correct information and replacement parts.

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

1. Model and serial numbers of the cutting unit.

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

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

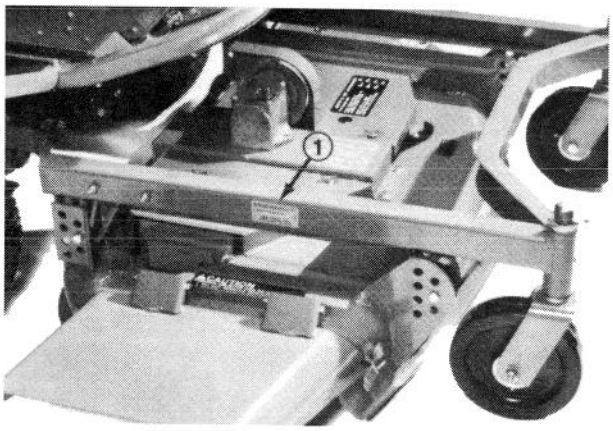


Figure 14

1. Model and serial number