Form No. 3354–528 Rev B

TORO®

Rotary Brush

Groundsmaster® 4000–D & 4100–D

Model No. 30426—Serial No. 260000001 and Up

Operator's Manual

English (EN)

Contents

Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. The two numbers are stamped on a plate which is located on the brush housing.

Write the product model and serial numbers in the space below:

Model No. _____

Serial No. _____

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger***, ***Warning***, and ***Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

Danger signals an extreme hazard that *will* cause serious injury or death if you do not follow the recommended precautions.

Warning signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

Caution signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **Important** calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

Safety

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.

8111 Lyndale Avenue South
Bloomington, MN 55420-1196

Before Operating

- Read and understand the contents of this Operator's Manual before operating the machine. Become familiar with all of the controls and know how to stop quickly. A free replacement manual is available by sending the complete Model and Serial Number to The Toro Company, 8111 Lyndale Avenue South, Bloomington, Minnesota 55420-1196.
- 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.
- Never operate the machine when under the influence of drugs or alcohol.
- Keep all bystanders away from the operating area.
- 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 ensure that the machine is in safe operating condition.
- Do not operate the 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.

While Operating

- This product may exceed noise levels of 85 dB(A) at the operator position. Hearing protection is recommended for prolonged exposure to reduce the potential of permanent hearing damage.
- Optional attachments may impact the operating characteristics of the traction unit. For example, slopes that have been mowed with cutting decks may be unsafe to travel on with a narrow attachment, such as a brush, due to the loss of support and stability provided by the width of the decks. Further, the decks may have prevented the traction unit from coming too close to holes, dips, drop offs, obstacles and uneven terrain which may cause a roll over. Use extra caution when operating a traction unit with a brush attached in place of mowing decks.
- Using the machine demands attention. To prevent loss of control:
  - Operate only in daylight or when there is good artificial light.
  - Drive slowly and watch for holes or other hidden hazards.
  - Do not drive close to a sand trap, ditch, creek, or other hazard.
  - Reduce your speed when making sharp turns and when turning on hillsides.
  - Avoid sudden starts and stops.
  - Before backing up, look to the rear and ensure that no one is behind the machine.
  - Watch out for traffic when near or crossing roads. Always yield the right-of-way.
- Stay away from the discharge area when the machine is operating. Keep all bystanders away from the discharge area and don't direct discharge toward bystanders.
- If the engine stalls or the machine loses headway and cannot make it to the top of a slope, do not turn the machine around. Always back slowly straight down the slope.
- **Do not take an injury risk!** When a person or pet appears unexpectedly in or near the operating area, **stop operation**. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume operation until the area is cleared.
- Lower the brush to the ground and remove the key from the ignition switch whenever the machine is left unattended.

Maintenance

- Remove the key from the ignition switch to prevent accidental starting of the engine when servicing, adjusting, or storing the machine.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Toro Distributor.
- Be sure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight. Check all bolts and nuts frequently to be sure that they are tightened to specification.
- Make sure all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not your hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate the skin and cause serious injury. Seek immediate medical attention if fluid is injected into skin.

- Before disconnecting or performing any work on the hydraulic system, all pressure in the system must be relieved by stopping the engine and lowering the cutting units and attachments to the ground.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the cutting units, attachments, and any moving parts. Keep everyone away.
- To ensure optimum performance and safety, always purchase genuine Toro replacement parts and accessories to keep the machine all Toro. **Never use "will-fit" replacement parts and accessories made by other manufacturers.** Look for the Toro logo to ensure genuineness. Using unapproved replacement parts and accessories could void the warranty.

Sound Pressure Level

This unit has an equivalent continuous A-weighted sound pressure level at the operator ear of 88 dBA based on measurements of identical machines per Directive 98/37/EC and amendments

Sound Power Level

This unit has a guaranteed sound power level of 104 dBA/1 pW, based on measurements of identical machines per Directive 2000/14/EC and amendments.

Vibration Level

Hand–Arm

This unit does not exceed a vibration level of 2.5 m/s^2 at the hands based on measurements of identical machines per ISO 5349 procedures.

Whole Body

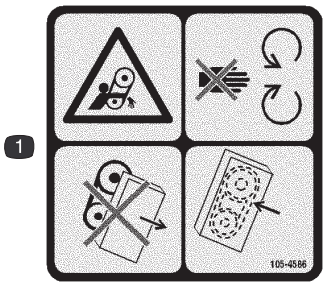
This unit does not exceed a vibration level of .5 m/s^2 at the posterior based on measurements of identical machines per ISO 2631 procedures.

Safety and Instruction Decals

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.

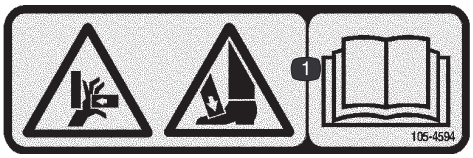
98-3110

1. Danger–See Operator's Manual
2. Danger–Wear ear protection
3. Thrown object hazard–Keep bystanders away.
4. Always wear eye protection
5. Cutting hazard to hands or feet–wait until all machine components have stopped before touching them.



105-4586

1. Entanglement hazard, belt—stay away from moving parts. Do not operate the machine with the shields or guards removed; keep the shields and guards in place.



105-4594

1. Crushing hazard, hand and foot—read the *Operator's Manual*.

Specifications

General Specifications

Brush Filament Material	Virgin polypropylene, high carbon wire or combination of both.
Brush Diameter	Uses 24 inch brush elements.
Oscillation Angle	8 degrees.
Sweeping Width Angle	Brush swings 25 degrees in both directions. 70.5 inches sweeping width @ center position, 64 inches minimum sweeping width @ full swing left or right.
Castor Wheels	Two 8.0 inch x 3.5 inch pneumatic rubber tires
Ground Clearance	6 inch
Brush Speed	220 rpm, no load for Groundsmaster 4000. 240 rpm, no load for Groundsmaster 4100
Brush Ground Pressure Adjustment	Adjustment is with .5 inch spacers and holes in castor fork.
Hydraulic/Mechanical Brush Drive	6.10 cubic inch roller vane motor drives directly into 16 tooth sprocket. A 40 tooth sprocket is mounted on brush shaft. One #60 chain connects motor and brush.
Brush Swing/Control	A 2 inch bore, 15 inch stroke, swing cylinder is connected in parallel with hydraulic brush drive. The cylinder is controlled by 3–position, closed center, 4–way solenoid directional valve. A 6 mm grade 8.8 shear bolt connects rod end of cylinder to 4–bar linkage.
Electrical Connection	Wire Harness Kit, Part No.110–3263 is required for traction unit model numbers 30410 and 30411 or Part No. 115–8492 for models numbers 30412 and 30412 . Order the appropriate kit from your Local Toro Distributor.
Weight	642 lbs.

Note: Specifications and design subject to change without notice.

Optional Equipment

High carbon wire brush filament Part No. 95–5942

Setup

Note: Use this chart as a checklist to ensure that all parts have been received. Without these parts, total setup cannot be completed.

Description	Qty.	Use
Lift arm assembly (R.H. & L.H.)	2	Attach lift arms to traction unit
Spacer (GM 4100 only)	2	
Pin assembly (GM 4100 only)	2	
Screw 3/8 x 1–1/4" lg.	10	
Flat washer .406 x .813	10	
Flange lock nut 3/8	10	
Connection channel	1	
Spacer	2	Attach lift arms to brush assembly
Thrust washer	4	
Screw 3/4 x 6–1/2" lg.	2	
Flat washer .813 x 1.500	2	
Jam nut 3/4	2	
Flat washer 1.063 x 2.000	1	Attach hydraulic cylinder to brush assembly
Cotter pin	1	
Screw M6–1 x 60	1	
Lock nut M6	1	
Cover assembly	1	Attach cover assembly to brush assembly
Retaining ring	1	
Flat washer 3/8 x 7/8	1	
Retaining knob	1	
Hose assembly (extension)	1	Connect traction unit hoses to brush (GM 4100 only)
Hose assembly (extension)	1	
Straight fitting w/ o–ring	1	
ORS plug w/ o–ring (–6)	7	Plug unused hydraulic hoses & ports
ORS plug w/ o–ring (–12)	4	
Cap plug w/ o–rIng (–6)	6	
Cap plug w/ o–rIng (–12)	4	
Wire harness cap	1	Plug into the traction unit wire harness to protect terminals
Cable tie	1	
Cable tie	4	Secure hydraulic hoses
Operator's manual	2	Read before operating the machine.
Parts catalog	1	
Declaration of conformity	1	

Note: Determine the left and right sides of the machine from the normal operating position.

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

Note: Install the rotary brush in a clean work area; cleanliness is extremely important. Before disconnecting the hydraulic lines, thoroughly clean the port areas. After disconnecting hydraulic lines, plug ports and cap lines

Remove Front Cutting Unit and Lift Arms

1. Position machine on a level surface, lower mower decks to the floor, engage parking brake, be sure traction pedal is in neutral position, PTO lever in OFF position, shut engine OFF and remove key from switch.

Note: Steps 2 thru 5 pertain only to the installation on a Groundsmaster 4100–D only.

2. Remove the hairpin cotters securing dampers to lift arms (Fig. 1). Pivot dampers toward deck housing.

Figure 1

1. Damper
2. Hair pin cotter

3. Disconnect the wing deck lift cylinder hydraulic hoses from the hydraulic ports on the traction unit (Fig. 2). Cap unused ports and plug unused hoses.

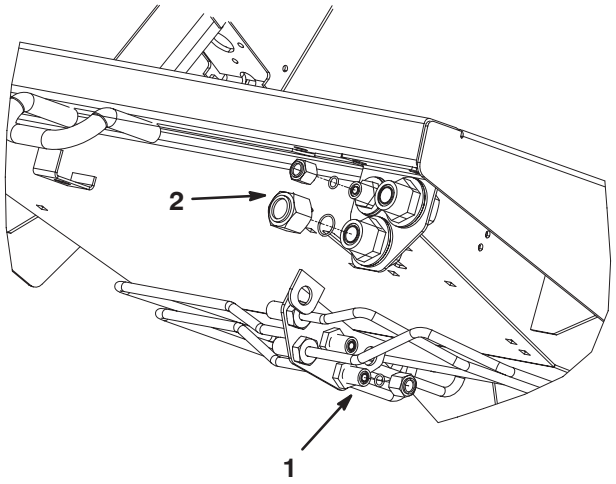


Figure 2

1. Wing deck lift cylinder ports and caps
2. Wing deck motor ports and caps

4. Disconnect the wing deck motor hoses from the hydraulic ports under the traction unit platform (Fig. 2). Cap unused ports and plug unused hoses.

5. Locate and unplug the cutting unit wire harness from the traction unit wire harness (Fig. 3).Connect the wire harness cap (included in the loose parts) to the traction unit wire harness to protect the terminals. To retain cap when not in use, secure the cap loop to traction unit with a cable tie.

6. Remove any cable ties securing the cutting unit wire harness to any traction unit components.

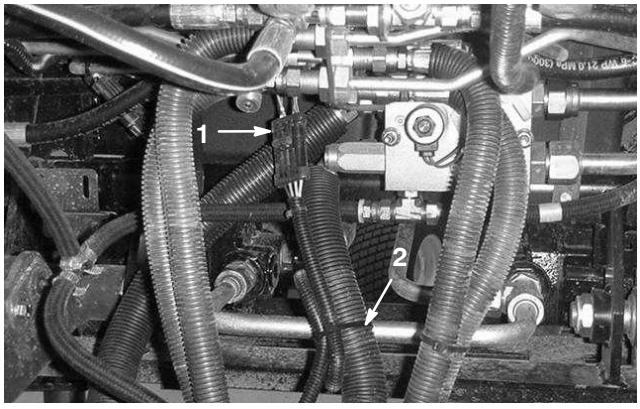


Figure 3

1. Wire harness
2. Cable tie

7. Slightly raise deck to remove tension from the height-of-cut chains. Remove hair pin cotters and clevis pins securing height-of-cut chains to rear of deck (Fig. 4). Retain hair pin cotters and clevis pins for re–installation of front deck

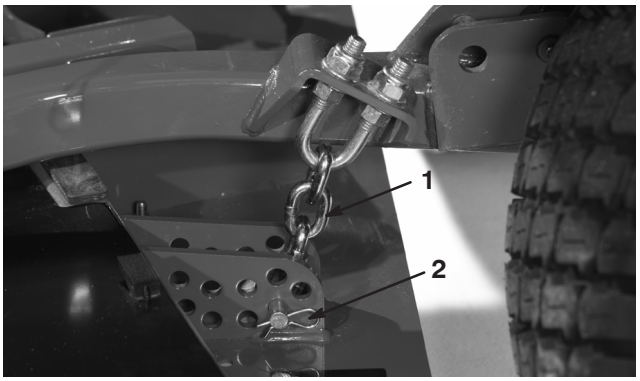


Figure 4

1. Height of cut chain
2. Clevis pin & hairpin cotter

8. Lower deck. Remove bolts, washers and locknuts securing each lift arm ball joint mount to cutting unit castor arm tube (Fig. 5).

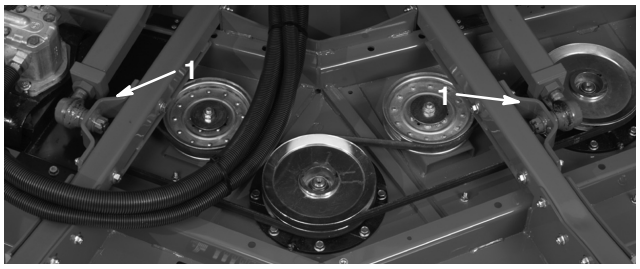


Figure 5

1. Lift arm ball joint mount (2)

9. Disconnect the hydraulic hoses from the fittings on the hydraulic motor (center deck only) (Fig. 6).

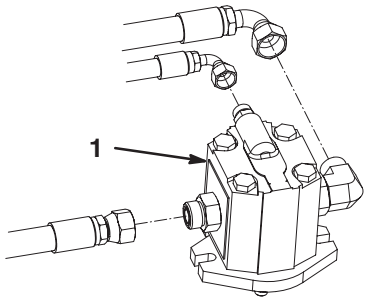


Figure 6

1. Hydraulic motor

Important Cap or plug hydraulic hoses and motor ports to prevent contaminating system during installation of brush or storage of deck.

10. Move mower deck away from traction unit.

11. Jack up the machine until front wheels are off the ground. Use jack stands or block the machine to prevent if from falling. Refer to Traction Unit Operator's Manual for Jacking instructions.

12. To gain access to the lift arms, the front wheel and tire assemblies must be removed.

13. Remove fasteners securing cylinder pin to lift arm. Remove cylinder pin and disconnect cylinder end from lift arm (Fig. 7).

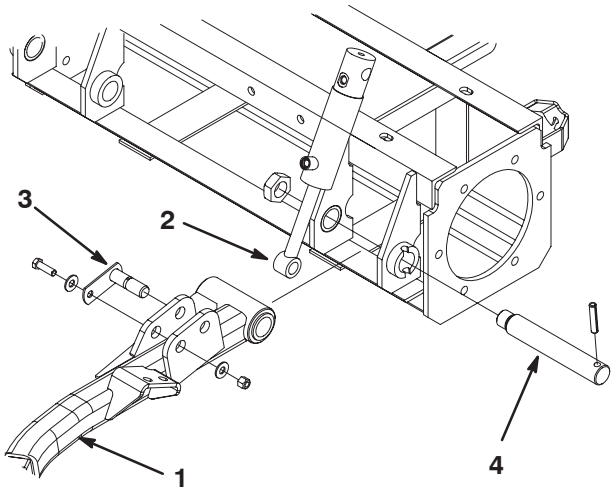


Figure 7

1. Left lift arm
2. Lift cylinder
3. Cylinder pin
4. Lift arm pin

14. Remove nut securing lift arm pin to frame (Fig. 7).

15. Remove lift arm pin and remove lift arm. Repeat procedure on opposite cylinder and lift arm.

Mount Brush Assembly

1. Mount left lift arm assembly to frame with lift arm pin and nut previously removed (Fig. 8). Torque to 60–70 ft–lb.

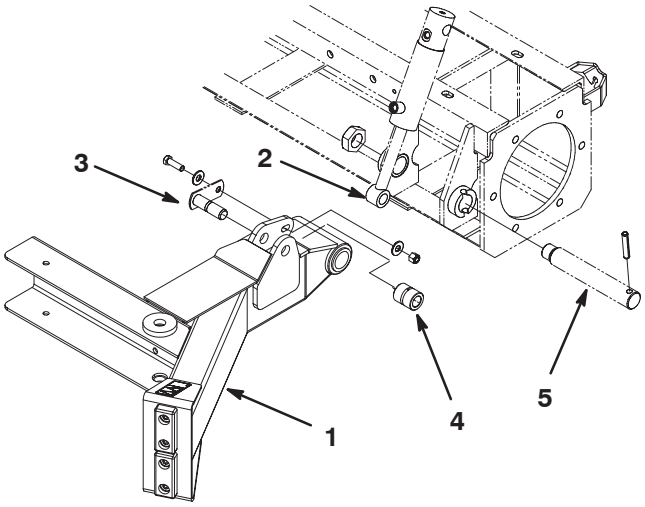


Figure 8

1. Left lift arm
2. Lift cylinder
3. Cylinder pin (GM 4100–D pins supplied in kit)
4. Spacer (GM 4100–D only)
5. Lift arm pin

2. Mount cylinder end to lift arm with cylinder pin, spacer (GM 4100 only), 3/8 x 1–1/4" lg. screw, .406 x .813 flatwasher and 3/8 flange locknut. (Fig. 8). Torque to 27–33 ft–lb. Spacer to be positioned between lift arm plates and on cylinder pin when installed in cylinder end.

3. Repeat procedure on opposite side of machine.

4. Secure right and left lift arms together with the connection channel and (10) 3/8 x 1–1/4" lg. screws, .406 x .813 flatwashers and 3/8 flange locknuts. Position as shown in figure 9. Torque to 27–33 ft–lb.

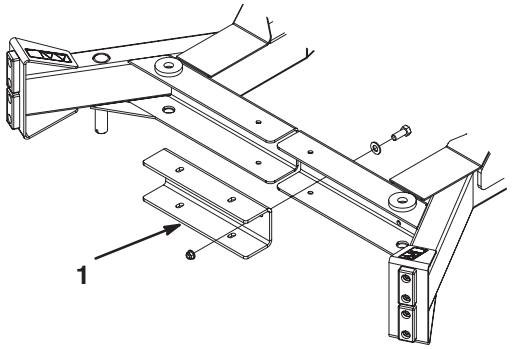


Figure 9

1. Connection channel

5. Secure left brush arm to left lift arm with a 3/4 x 6–1/2" lg. screw, spacer, (2) thrust washers, .813 x 1.500 flatwasher and 3/4 jam nut (Fig. 10). Thrust washers to be positioned between brush arm bushings and inside of lift arm. Torque to 145–190 ft–lb.

6. Repeat procedure on opposite brush arm.

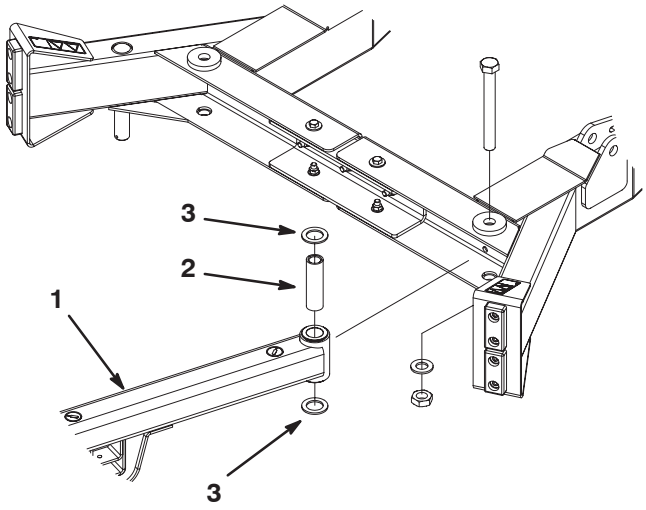


Figure 10

1. Left brush arm
2. Spacer
3. Thrust washers

7. Secure cylinder to post on underside of right lift arm with a 1.063 x 2.000 flat washer and cotter pin (Fig. 11).

8. Secure shaft end of cylinder to mounting gusset on under side of left brush arm with a M6–1 x 60 capscrew and M6 locknut (Fig. 11). Torque to 87–105 in–lb.

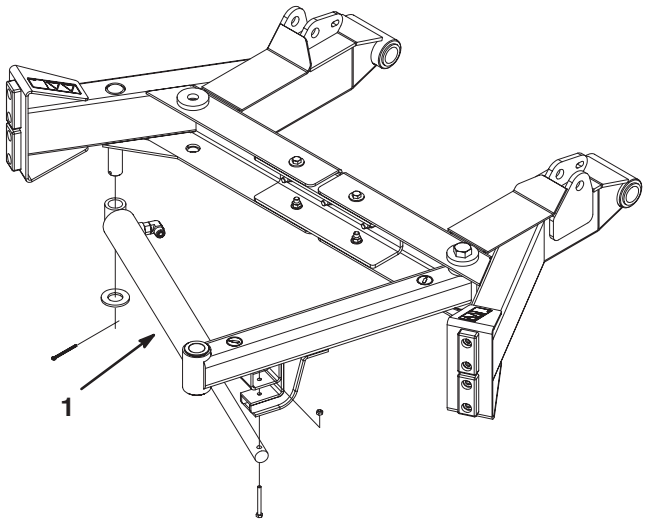


Figure 11

1. Cylinder

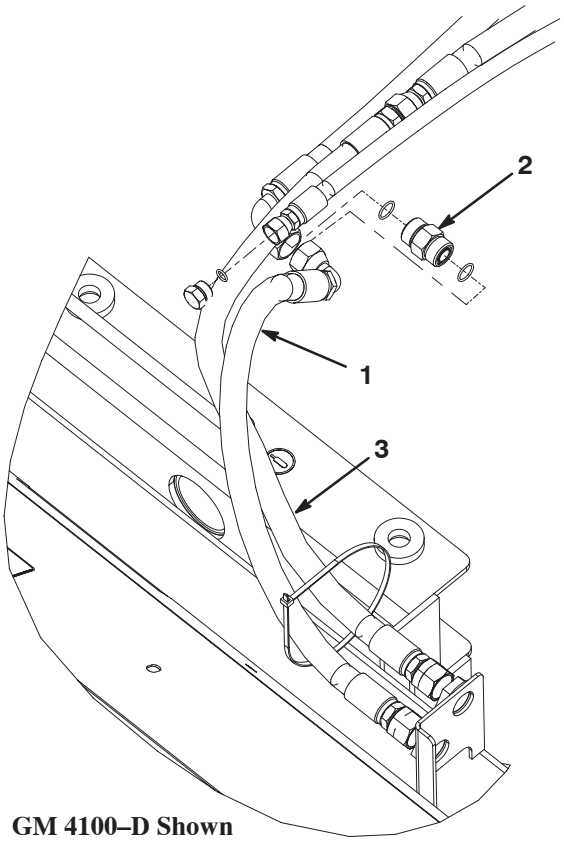
Groundsmaster 4100–D only

9. Connect the (2) extension hoses (Fig. 12) to the large traction unit hoses as follows:

- Connect the 90° fitting of the extension hose to the 90° fitting on the traction unit hose with a straight adapter.

Important Make sure o–rings are lubricated and in position when making all hydraulic connections.

- Connect the extension hose with the straight fitting to the hose with the straight fitting.
- Torque the hoses to 43–48 ft.–lb.



GM 4100–D Shown

Figure 12

1. Extension hose w/90° fitting
2. Straight adapter
3. Extension hose w/straight fitting

10. Route and connect the extension hoses (Fig. 12 & 14) to the brush bulkhead fittings as follows:

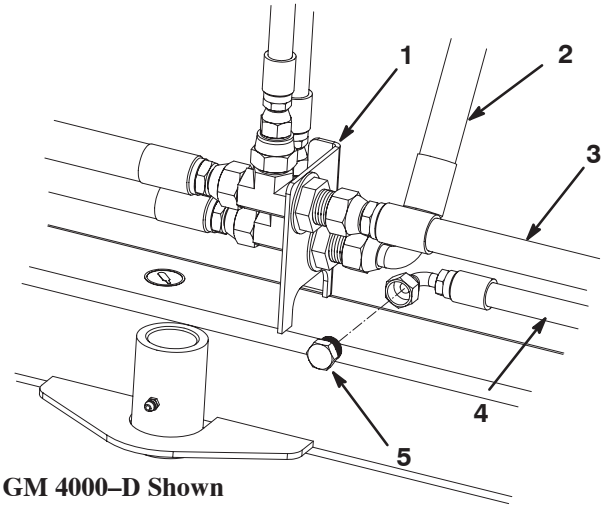
- Extension hose with 90° fitting to bottom bulkhead fitting.
- Extension hose with straight fitting to top bulkhead fitting.
- Torque hoses to 43–48 ft./lb.
- Plug small hose with O–ring and plug. Torque to 24–29 ft–lb.

Note: Route hoses so they slide on top of the formed rod when operating rotary brush.

Groundsmaster 4000–D only

11. Route and connect the traction unit hoses (Fig. 13 & 14) to the brush bulkhead fittings as follows:

- Connect hose with 90° fitting to bottom bulkhead fitting.



GM 4000–D Shown

Figure 13

1. Bulkhead
2. Hose w/90° fitting
3. Hose w/straight fitting
4. Small hose
5. Plug w/O–ring

Important Make sure o–rings are lubricated and in position when making all hydraulic connections.

- Connect hose with straight fitting to top bulkhead fitting.
- Torque hoses to 43–48 ft./lb.
- Plug small hose with O–ring and plug. Torque to 24–29 ft–lb.

Note: Route hoses so they slide on top of the formed rod when operating rotary brush.

12. Secure hydraulic hoses with (4) wire ties as shown in figure 14. Space wire ties along length of hoses.

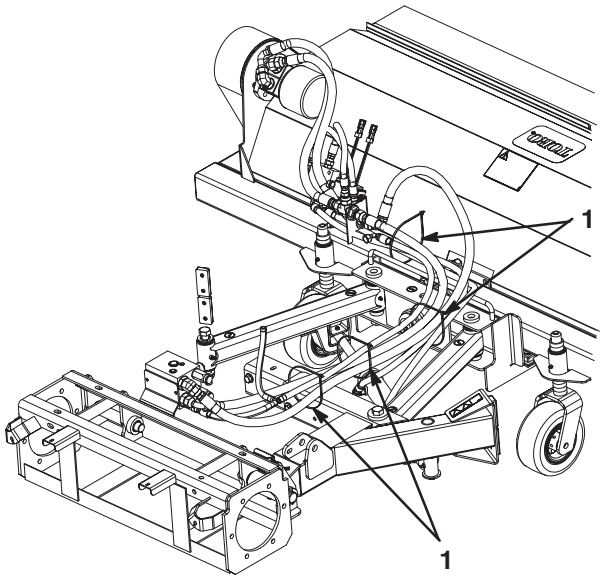


Figure 14

1. Wire ties

Note: Hoses must not contact sharp edges or moving parts and must be free of twists.

13. Install chain cover onto frame and secure with retainer knob, flat washer and retaining ring (Fig. 15).

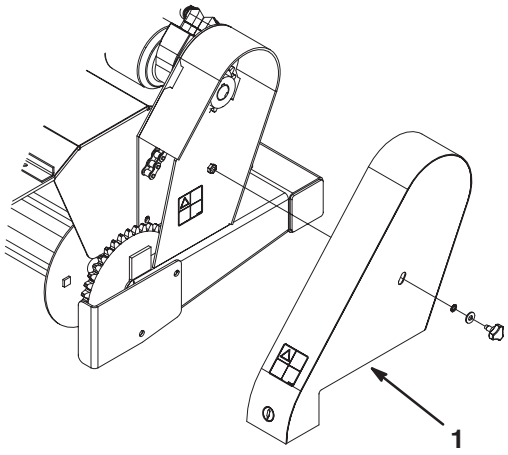


Figure 15

1. Chain cover

Adjust Counterbalance

(Groundsmaster 4100–D only)

Reduce counterbalance by unscrewing the stem on the valve approximately 3 turns.

Important Whenever rotary brush is removed, make sure to readjust the counterbalance pressure to it's original setting.

Adjust Lift Pressure

(Groundsmaster 4000–D only)

- Remove the jam nut securing the plug assembly in the lift control valve (Fig. 16) Remove the plug and the washers from the lift control valve. Note the order of the components during removal.

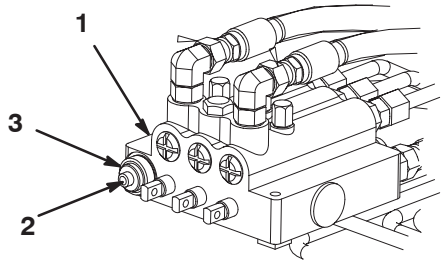


Figure 16

1. Control valve
2. Lift pressure plug assembly
3. Jam nut

- Remove the gray lift pressure spring from the lift control valve and replace it with the green spring included in the kit (Fig. 17). Retain the gray spring to reinstall if the rotary brush is removed.

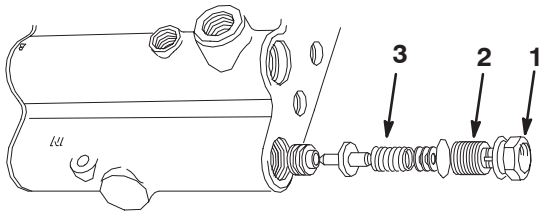


Figure 17

1. Jam nut
2. Plug assembly
3. Spring

- Reinstall all the components but do not tighten the jam nut on the plug assembly.
- Rotate the plug assembly to attain 2700 psi minimum.
- Tighten the jam nut on the plug assembly.

Important Whenever the rotary brush is removed, make sure to reinstall the gray spring into the lift control valve and readjust the lift relief pressure to it's original setting.

Adjust Drop Speed

Refer to Adjusting the Cutting Unit Flow Control in Traction Unit Operator's Manual.

Check Chain Tension

New chains will stretch during the first few days of operation, therefore; check chain tension frequently. If chain requires adjustment, refer to Adjusting Chain.

Check Castor Wheel Tire Pressure

Castor wheel tires to be inflated to 50 psi.

Important Before the rotary brush is operated, it must be greased to assure proper lubricating characteristics: refer to Lubrication section of manual. Failure to properly grease the unit will result in premature failure of critical parts.

Operation

Note: Determine the left and right sides of the machine from the normal operating position.

Warning

Thrown debris has considerable force and could cause injury.

- **Stay away from the sweeping area when the machine is operating.**
- **Keep bystanders away from the sweeping area when the machine is running.**

Operation

1. Lower the brush to the ground ensuring the lift circuit is in the float position. The float position is engaged by moving the center lift lever forward and releasing it to return to the neutral position.
2. Increase engine speed to full throttle position.
3. Engage PTO switch.
4. Drive traction unit at a slow, comfortable speed.

Operating Tips

You can add measurable sweeping hours to your brush by remembering these simple things:

1. More pressure doesn't give a better sweep.
2. A level brush lasts longer.
3. Faster ground speed will cause the brush to wear faster.

Adjust Brush Down Pressure

Improper downward pressure can decrease brush life up to 95% (depending on the incorrect amount of pressure).

A brush sweeps with the tips of its bristles. When too much down pressure is applied, the brush is no longer using it's tips; the brush is now working with the sides of the bristles. This limits the flicking action of the bristles and limits it's sweeping effectiveness.

To check for correct downward pressure, operate brush on the ground, rotating at normal operating speed with traction unit remaining stationary. Stop operation, raise brush and measure width of swept path. A properly adjusted brush will have a sweeping path width of 2"–4".

Adjust castor height for proper brush ground pressure. The castor wheel height is adjustable from 4 to 7 inches in 1/2 inch increments by adding or removing an equal amount of spacers from each castor wheel.

1. Start engine and raise brush. Stop engine after brush is raised.
2. Remove cap securing castor spindle to frame bracket.

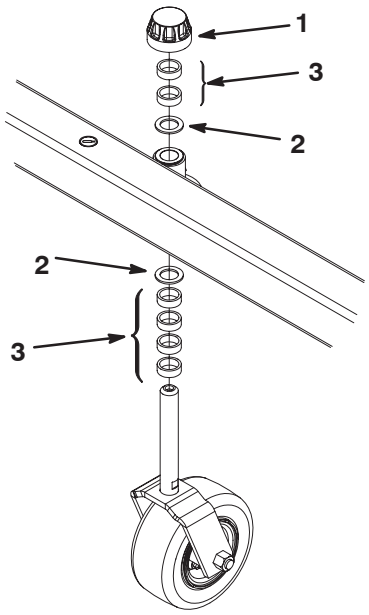


Figure 18

1. Cap
2. Thrust washers
3. Spacers

3. Move desired amount of spacers to top or bottom of bracket. Make sure spacers are equal on both castor wheels and a thrust washer is positioned on each side of frame bracket.
4. Install cap and lower brush.

Ground Speed

Bulldozing produces a side thrust and excessive stress on the brush, core and frame. While operating under the plow effect, the bristles are flexed against the steel ring which holds them and, eventually, this flexing will break the bristles from the ring.

If ground speed is too fast, debris will pile up in front of brush causing brush to bulldoze instead of sweep. This can damage not only the brush, but also the core, chains, sprockets, drive lines and frame.

Switch Operation

One switch will rotate the brush to the right and the other switch will rotate the brush to the left. The brush must be on the ground and rotating to change the angle of operation.

Maintenance

Note: Determine the left and right sides of the machine from the normal operating position.

Greasing the Brush

The rotary brush must be lubricated regularly. If machine is operated under normal conditions, lubricate bearings and bushings with No. 2 general purpose lithium base grease after every 8 hours of operation or daily, whichever comes first. Lubricate fittings immediately after every washing.

The rotary brush has (12) fittings that must be lubricated (Fig. 19).

- Castor shaft bushings (2)
- Axle shaft bearings (2)
- Right and left lift arms (2)
- Right and left brush arms (4)
- Pivot pin (1)
- Cylinder pivot (1)

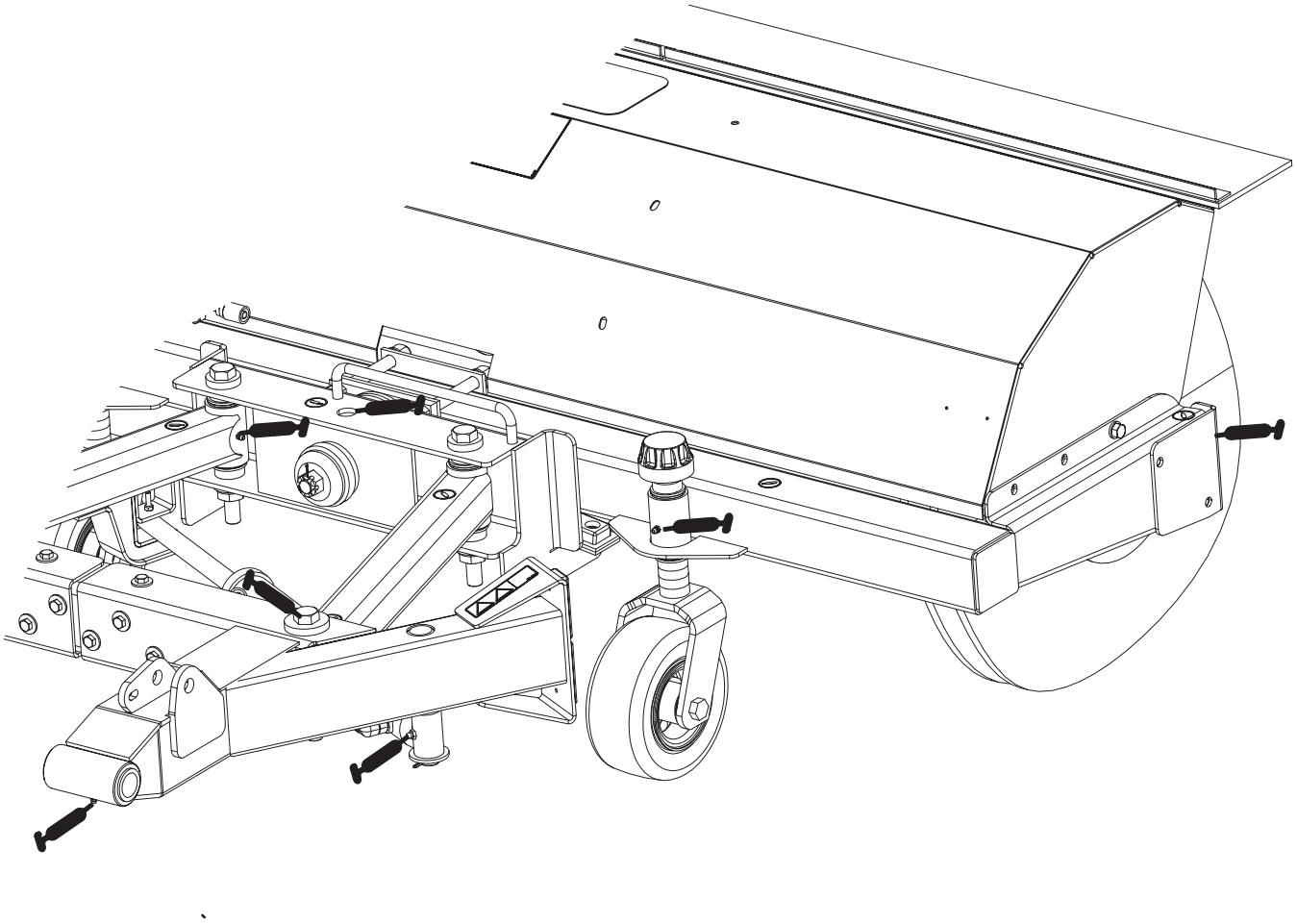


Figure 19

Adjusting Chain Tension

Make sure chain is properly tensioned to assure proper operation of the machine and unnecessary wear. Check chain tension by pressing side of chain at mid span of drive sprockets with 10 lbs. of force. Chain should deflect .10 in. in each direction from center (.20 in. total deflection from side to side).

1. Remove retainer knob, flat washer and retaining ring securing chain cover to frame and remove cover (Fig. 20).

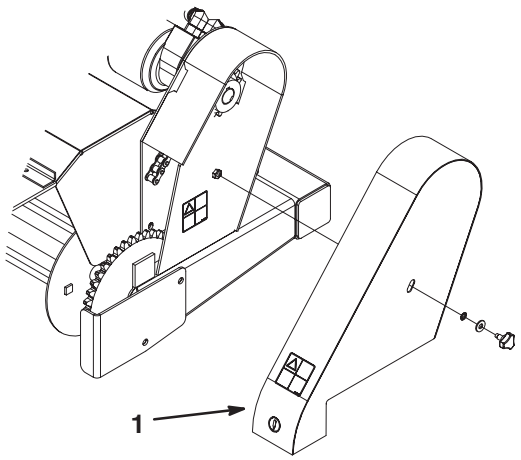


Figure 20

1. Chain cover

2. To adjust chain tension:

- Loosen socket head screws and nuts securing hydraulic motor to frame sideplate.

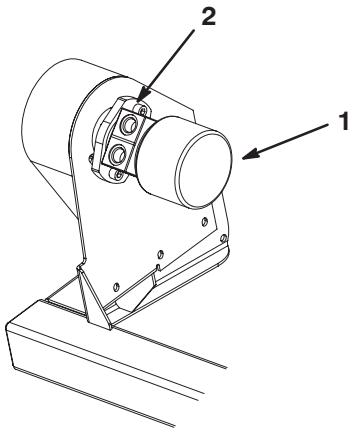


Figure 21

1. Hydraulic motor
2. Mounting screw & nut

- Rotate motor until desired chain tension is attained, then tighten nuts.

3. Install chain cover

Changing Brush Elements

The axle assembly contains 32 brush elements.

Summer use: Polypropylene elements.

Winter use: Alternating Polypropylene and steel elements (16 ea.).

1. Relieve chain tension. Refer to Adjusting Chain Tension.
2. Remove chain from sprocket.
3. Remove fasteners securing axle bearings to right and left guards. This will allow removal of axle assembly and bearings (Fig. 22).
4. Remove axle plate from axle assembly.
5. Slide brush elements off axle assembly.
6. Slide new brush element onto axle assembly so alignment pins of element ride over **bottom** bar of axle assembly.
7. Rotate next brush element 180° from side to side and top to bottom and slide onto axle assembly so alignment pins of element ride over **top** bar of axle assembly. Alternating brush elements allows each wafer to obtain maximum sweeping width.

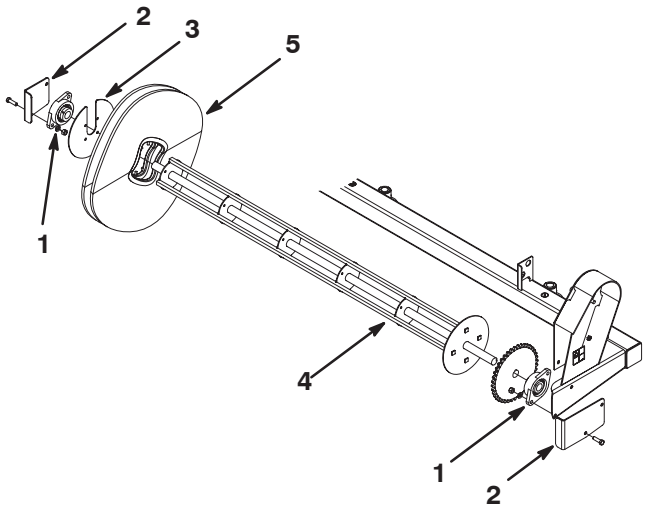


Figure 22

1. Axle bearing
2. Guard
3. Axle plate
4. Axle
5. Brush element

Servicing Bumper Bushings

After many hours of operation, the bushings pressed into the top and bottom of the bumper will wear. To check the bushings, move castor fork fore and aft and from side to side. If castor spindle is loose in the bushings, bushings are worn and must be replaced.

1. Start traction unit and raise brush to highest possible position and turn off engine. Block up brush frame so it cannot accidentally fall.
2. Remove locking cap, thrust washers and spacers from top of castor spindle.
3. Pull castor spindle out of bumper. Allow thrust washers and spacers to remain on bottom of spindle.
4. Insert pin punch into top or bottom of bumper and drive bushing out of tube (Fig. 23). Also drive other bushing out of bumper. Clean inside of bumper to remove any dirt.

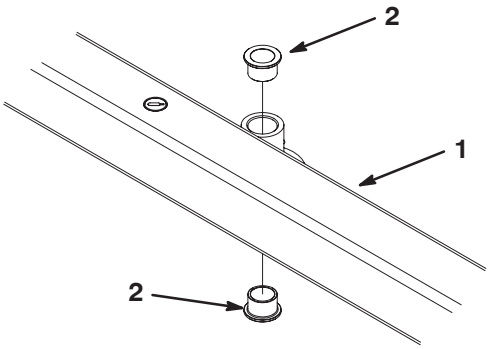


Figure 23

1. Bumper
2. Bushing

5. Apply grease to inside and outside of new bushings. Using a hammer and flat plate, drive bushings into bumper.
6. Inspect castor shaft for wear and replace if damaged.
7. Push castor shaft through bushings and bumper. Slide spacers onto shaft and secure with locking cap.

Servicing Castor Wheel And Bearing

The castor wheel rotates on a high–quality roller bearing and is supported by a spanner bushing. Even after many hours of use the bearing wear will be minimal. A wobbly castor wheel usually indicates a worn bearing.

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

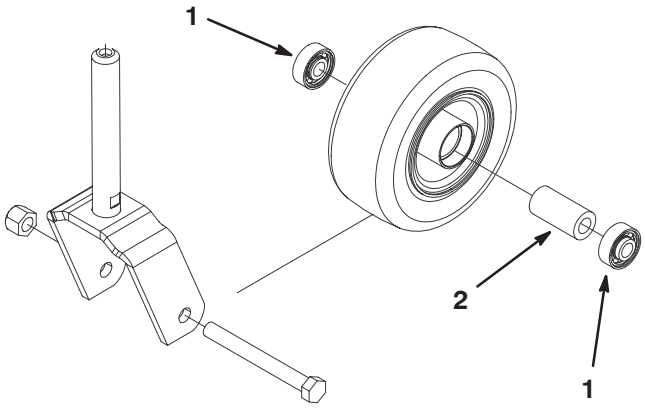
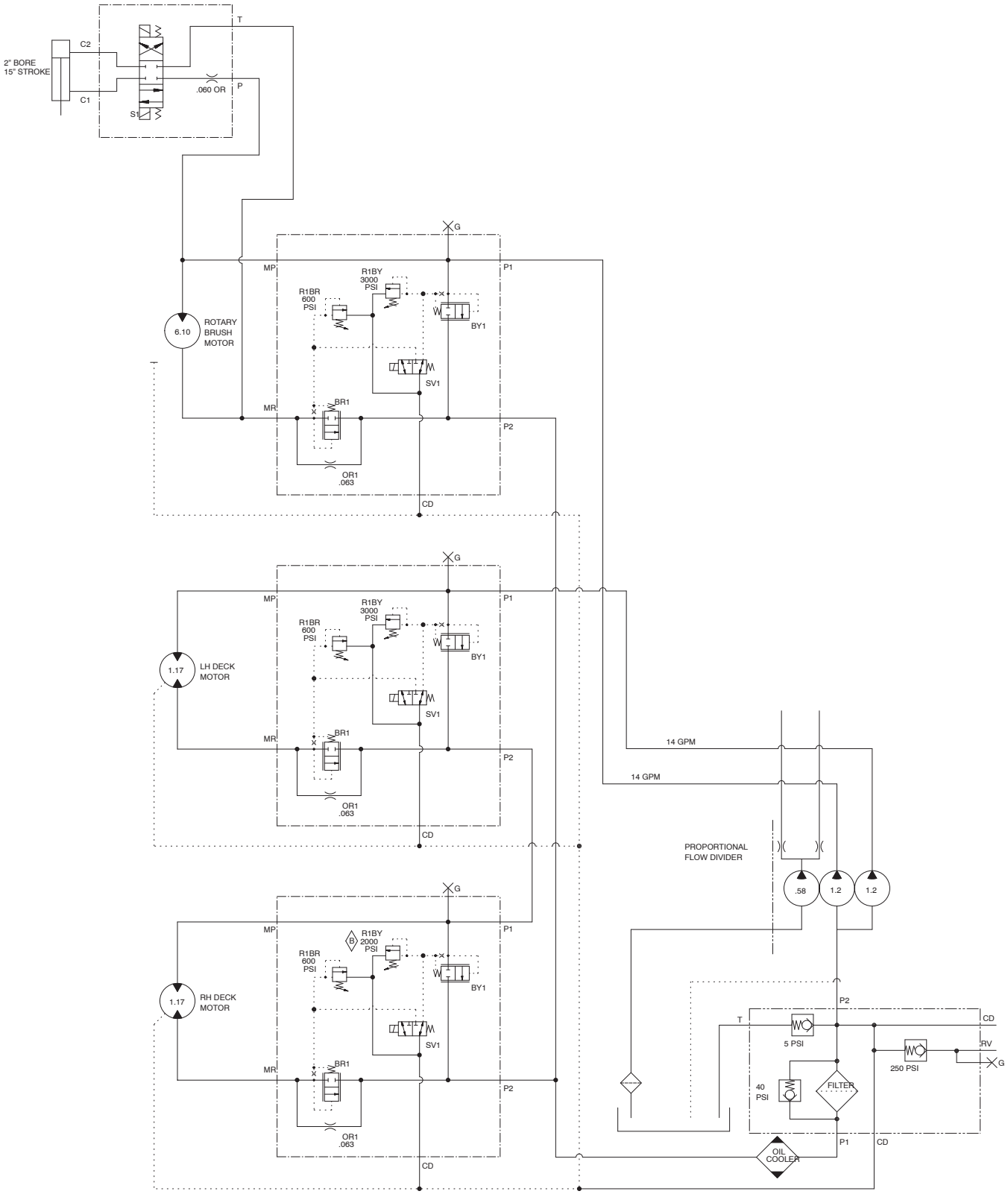


Figure 24

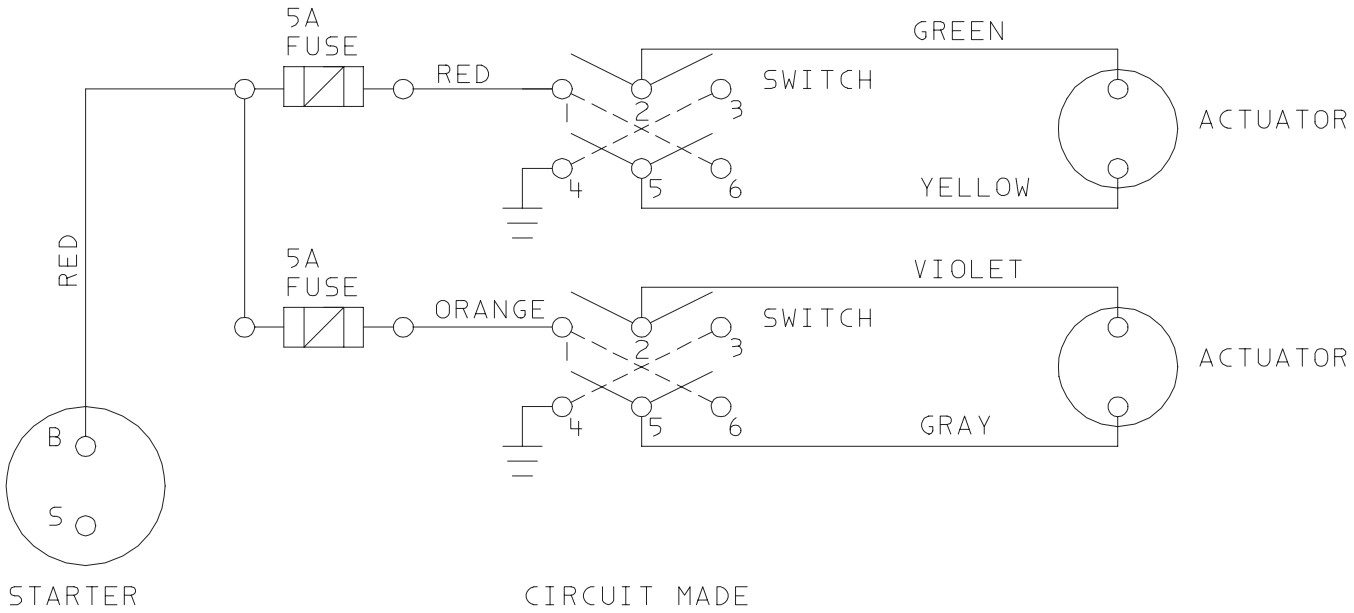
1. Outer bearing
2. Inner bearing

2. Remove outer bearing from wheel hub and allow inner bearing to fall out (Fig. 24). Remove outer bearing from opposite side of wheel hub.
3. Check the bearings and inside of wheel hub for wear. Replace defective parts as required.
4. To assemble the castor wheel, push outer bearing into wheel hub. Slide inner bearing into wheel hub. Push other bearing into open end of wheel hub to captivate the inner bearing inside the wheel hub.
5. Install castor wheel assembly between castor forks and secure in place with capscrew and locknut.

Hydraulic Schematic



Electrical Schematic



KEYWAY	2-4; 5-1
CENTER	OFF
OPPOSITE	2-1; 5-4

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 Toro Commercial Product ("Product") 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
952-888-8801 or 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 the following:

- 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, and certain sprayer components such as diaphragms, nozzles, and check valves, 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.

Part No. 374-0031 Rev. C