



MODEL 30743

SET-UP & OPERATORS
MANUAL**ROTARY HYDRAULIC BROOM**
FOR GROUNDSMASTER 300 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 this equipment read and understand the contents of this manual. Pay particular attention to the **SAFETY INSTRUCTIONS** highlighted by the triangular safety alert symbol.



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



FOREWORD

You have purchased a product from the industry leader in maintenance excellence. Its future performance and dependability are of prime importance. TORO is also concerned about future use of the product and of safety to the user. Therefore, this manual must be read by you and those involved with the ROTARY HYDRAULIC BROOM to assure that safety, proper set-up, operation and maintenance procedures are followed at all times. The major sections of the manual are:

1. SAFETY INSTRUCTIONS
2. SET-UP INSTRUCTIONS
3. BEFORE OPERATING

4. OPERATING INSTRUCTIONS
5. LUBRICATION
6. MAINTENANCE



SAFETY INSTRUCTIONS

Keep this manual in the plastic tube behind the operator seat of the Tractor.

It is very important that all persons operating this equipment have easy access to these instructions at all times!

Carefully read and follow the "SAFETY" "SET-UP" and "OPERATING" 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.

Safety, mechanical and some general information in this manual are emphasized. DANGER, WARNING and CAUTION identify safety messages. Whenever the triangular safety symbol appears, it is followed by a safety message that must be read and understood. For more details concerning safety, read the SAFETY Instructions in this manual.

IMPORTANT identifies special mechanical information and NOTE identifies general information worthy of special attention. These instructions are provided as a guide for the safe set-up, operation and maintenance of this equipment. However, the operator's personal safety, as well as the persons in the work area, will depend on the careful actions and good judgement of the operator. To reduce the potential for injury or death, comply with the following safety instructions.

BEFORE OPERATING:

1. Read and understand the contents of this manual before operating the machine. Become familiar with all controls and know how to stop quickly. A replacement manual is available by sending complete model and serial number to:

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

2. Learn how to operate the machine and how to use it properly. DO NOT let anyone operate this equipment without first receiving thorough instructions.

3. Keep all bystanders away from the operating area.

4. 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.

SAFETY INSTRUCTIONS

WHILE OPERATING:

1. This ROTARY HYDRAULIC BROOM is only intended for use with the GROUNDMASTER 300 SERIES TRACTOR.

2. Hearing protection is recommended for prolonged exposure to reduce potential of permanent hearing damage.

3. Using the machine demands attention. This attachment adds extra weight to the Tractor and when in the raised position can effect the ability to steer the Tractor, especially on slopes. Drive the vehicle safely and adhere to the following points in order to prevent loss of control:

A. Ensure 140 lbs or rear weights are added to rear of Tractor when Broom is installed (4 #24-5790 weights).

B. When transporting, especially travelling on a slope, rotate the Broom up but keep castor wheels on the ground, travel slowly and do not brake suddenly.

C. Do not drive on highway or public roads.

D. Always SLOW the Tractor when approaching and while making a turn.

E. Always SLOW the Tractor when driving in unfamiliar areas or over rough terrain.

F. Always SLOW the Tractor when changing direction of travel or preparing to stop.

G. When turning or driving on slopes, always SLOW the Tractor, then turn to prevent loss of control and possible upset.

H. **DO NOT** make sudden or sharp turns. **DO NOT** suddenly change direction of travel on an incline, ramp, grade, slope or similar surface.

I. Always adjust the Tractor speed to allow for existing ground conditions such as wet slick surfaces, loose sand or gravel and/or low visibility conditions such as dim or bright lighting, fog, mist or rain.

J. Be especially careful when driving down an incline or slope. Drive the vehicle **UP** and **DOWN** the face of the slopes, inclines or grades whenever possible. **DO NOT DRIVE** across the face if at all possible. There is a risk

of upsetting the vehicle, which can result in serious injury or death.

K. Before backing up, look to the rear and assure no one is behind the machine.

4. Stay away from discharge area when machine is operating. Keep all bystanders away from the discharge area and do not direct discharge toward bystanders.

5. **DO NOT TAKE AN INJURY RISK!** When a person, pet or animal 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.

6. Lower the Broom to the ground and remove key from ignition whenever machine is left unattended.

7. 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.

8. Watch out for traffic when near or crossing roads. Always yield the right of way to pedestrians and other vehicles.

9. If the ROTARY HYDRAULIC BROOM begins to vibrate abnormally, stop immediately. Shut off the Tractor engine. Repair all damage before commencing operation.

10. Before servicing or making any adjustments to the ROTARY HYDRAULIC BROOM:

A. Stop the Tractor and set the parking brake.

B. Shut off the Tractor's engine and remove key from ignition.

11. Keep all nuts, bolts and other fasteners tightened securely. Replace any parts removed during servicing or adjustments.

12. To assure optimum performance and continued safety of this product, always use genuine TORO replacement parts. Replacement parts and accessories made by other manufacturers may affect the product's operation, performance or durability. Such use could also void the warranty of The Toro Company.



SAFETY INSTRUCTIONS

MAINTENANCE:

1. Remove key from ignition switch to prevent accidental starting of the engine when servicing, adjusting or storing the machine.
2. Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized TORO Distributor or Dealer.
3. Be sure machine is in safe operating condition by keeping nuts, bolts, and screws tight. Check all mounting bolts and nuts frequently to be sure they are tightened to specification.
4. Make sure all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.

5. 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.

6. Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine and lowering Broom to the ground.

SPECIFICATIONS:

Brush Filament Material: Virgin polypropylene, high carbon wire or combination of both.

Brush Diameter: 24 inches.

Sweeping Width /Angle: Broom swings 30 degrees in both directions. 60 inches nominal sweeping width at center position, 52 inches nominal sweeping width at 30 degree swing.

Broom Swing Control: Manual pin position.

Brush Ground Pressure Adjust: Adjustment is with .5 inch spacers at the castor forks.

Brush Speed: 200 RPM @ full engine RPM

Hydraulic Drive: PTO driven pump, Tank has 10 U.S. gallon capacity.

Castor Wheels: Two 8.5 inch x 3.5 inch pneumatic tires.

Weight: 560 lbs.

Optional Equipment:

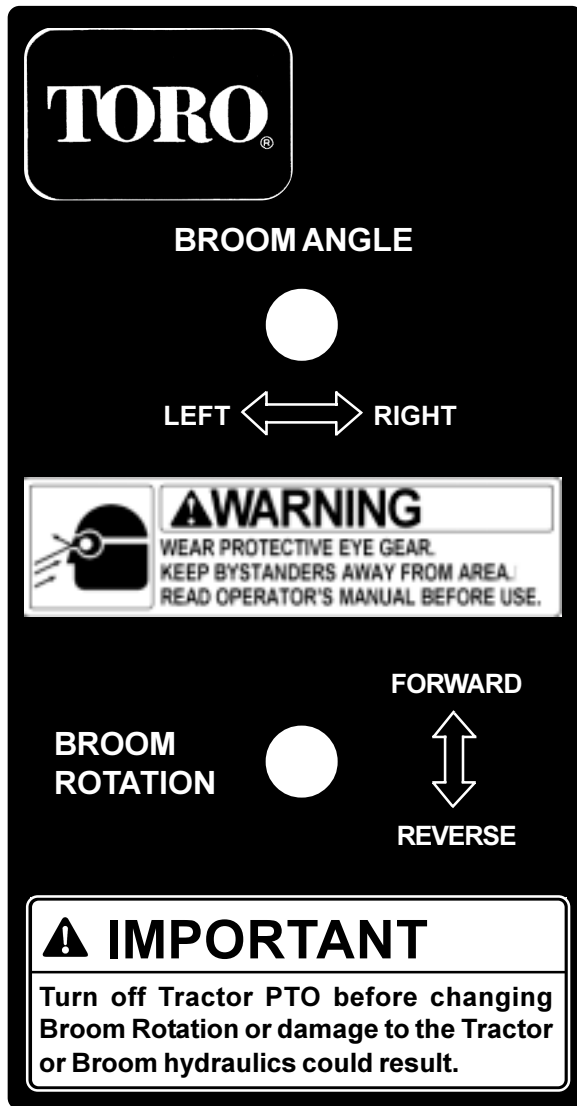
Steel Brush Element (95-5942)

Electric Swivel Option (Model No. 30728)

Brush Rotation Reversing Option

SAFETY AND INSTRUCTION DECALS

The following decals are installed on the machine. If any become damaged or illegible, they should be replaced immediately. The decal part number is listed below. Replacements can be ordered from an Authorized TORO Distributor.



Part No. 100-5854
Located on Control Box
(Electric Swivel Option)



Part No. 99-6522
Located on PTO Shaft.



Part No. 85-4730
Located on Tank Neck



Part No. 54-0910
Located on Tank



Part No. 99-6540
Located near PTO shaft



Part No. 94-8701
Located on Broom Head Frame



58-6520

SAFETY AND INSTRUCTION DECALS



WARNING

THIS ATTACHMENT ADDS EXTRA WEIGHT TO THE TRACTOR AND CAN AFFECT THE ABILITY TO STEER THE TRACTOR, ESPECIALLY ON SLOPES.

LOSS OF CONTROL CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

IN ORDER TO PREVENT LOSS OF CONTROL:

- ENSURE 140 LBS OF REAR WEIGHTS ARE ADDED TO REAR OF TRACTOR (4 #24-5790 WEIGHTS).
- WHEN TRANSPORTING, ESPECIALLY TRAVELLING ON A SLOPE, ROTATE THE BROOM UP BUT KEEP THE CASTOR WHEELS ON THE GROUND, TRAVEL SLOWLY AND DO NOT BRAKE SUDDENLY.

- WEAR PROTECTIVE EYE GEAR.
- KEEP BYSTANDERS AWAY FROM AREA.
- READ OPERATOR'S MANUAL BEFORE USE.

Part No.99-6542
Located on ends of
Tank / Mount Frame

SET-UP INSTRUCTIONS

GENERAL

Refer to illustrated parts list for details of parts used in assembling and installing the ROTARY HYDRAULIC BROOM.

NOTE: "Right", "Left", "Front" and "Rear" are referenced while sitting in the Vehicle operator's seat.

NOTE: See PUMP MOUNTING for installing Broom on Tractors with different PTO shaft lengths.

HEAD AND TANK ASSEMBLY:

1. Extend stands on tank / mount frame and retain with latch pins.
2. Align broom head pivot with tank / mount frame. Insert pivot pin and retain with cotter pin.
3. Connect hydraulic hoses from motor to pump and inlet filter. Route hydraulic hose to pump through bottom clamp at lift stop. Route hydraulic hose to inlet filter by looping around right side of lift stop through upper clamp. Pull hoses snug from pump and inlet filter to clamps and secure.
4. Pivot Broom head and/or extend manual swivel tube until it can be attached to the Broom head frame. Secure to Broom head frame with the cap screw, spacer and locknut. Attach the manual swivel shaft to the tank / frame mount with the cap screw and locknut.

ELECTRIC SWIVEL OPTION (MODEL NO. 30728)

1. Pivot Broom head until the actuator can be attached to the Broom head frame.
2. Secure motor end (motor facing right) of actuator to Broom head frame with the cap screw and locknut. Attach the shaft end of the actuator to the tank / frame mount with the cap screw, bushing and locknut.

BROOM CONTROL BOX AND WIRING (ELECTRIC SWIVEL OPTION)

1. Attach Broom control box to the steering column with clamp and nuts about 6 inches below steering wheel.
2. Route the actuator wire through the steering column and connect to actuator.

3. Remove the instrument panel cover.

4. Route the power wires through the steering column and frame to the instrument panel and attach the negative wire (black) to the common ground terminal and the positive wire (red) to the rear terminal of the fuel gauge. Reinstall cover.

INSTALLATION - STANDARD PUSH ARM INSTALLATION

Note: Ball Joint Mount L.H. (21-3050), which is used with the side discharge deck, is required before proceeding with installation.

1. Position Tractor on level surface and shut engine off.

2. Move Broom into position in front of Tractor.



WARNING

Since the right hand push arm is spring-loaded to about 100 pounds and left hand push arm is spring-loaded to about 150 pounds, a helper is needed to push the push arm down. Sudden release of the push arm could cause injury.

3. Have a helper carefully push down on right hand push arm until holes in ball joint mount line up with holes in Broom mount. Attach ball joint mount to Broom mount with cap screws, flat washers and flange nuts but don't tighten.

4. Align and insert the Tractor PTO splined shaft into the Broom PTO receiver.

The Tractor or Broom may need to be moved slightly to allow the PTO shafts to be coupled.

Note: The PTO shafts will only align and insert in one position.

5. Have a helper carefully push down on left hand push arm until holes in ball joint mount are in line with holes in Broom mount.

Immediately slide 4 x 4 in. block of wood between top of push arm and underside of chassis.



WARNING

Make sure wooden block does not slip out accidentally.

6. Attach ball joint mount to Broom mount bracket with spacer (100-5876) using the supplied cap screws, flat washers and flange nuts.

7. Tighten all fasteners.

8. Remove 4 x 4 inch block

9. Install Broom lift chain

10. Install arm lock brackets using 1/2" x 4" pins and secure with retaining pins.

11. Connect wire from control box to actuator plug. (Option)

INSTALLATION - QUICK ATTACH INSTALLATION (OPTION)

Note: The Tractor Quick Attach Adapter Kit must be installed before proceeding - See Quick Attach Manual

INSTALLING QUICK ATTACH ADAPTERS ON BROOM (OPTION)

1. Assemble the left and right Quick Attach implement brackets onto the Broom using the same mounting holes as the ball joint push arm mounts. Use the supplied cap screws, flat washers, lock washers and nuts. Note that the tapered pins and the mounting holes on the left bracket are set closer together and the mounting flange orientation is perpendicular to the right bracket.

2. Replace straight grease fitting on left tractor push arm with provided 90 degree grease fitting facing up.

BEFORE OPERATING

ATTACHING THE BROOM

1. Lock the implement lift control in the “float” position and push the end of the lift arm to it's lowest position using your hand.

2. Rotate the Quick Attach engagement lock fully rearward so that it stops against the lift arm.

3. Start the Tractor and drive up to the Broom, aligning with the Broom mounting brackets and stopping approximately 6 inches away from the Broom. Using the lift control lower the push arms until the left Quick Attach Tractor receiver bracket is approximately two inches above the left implement bracket. The right push arm will also lower, but not quite as far.

The tapered pins on the Broom should be approximately 6" ahead of, and in line with the Tractor receiver brackets. If they are not, back up the Tractor and adjust position.

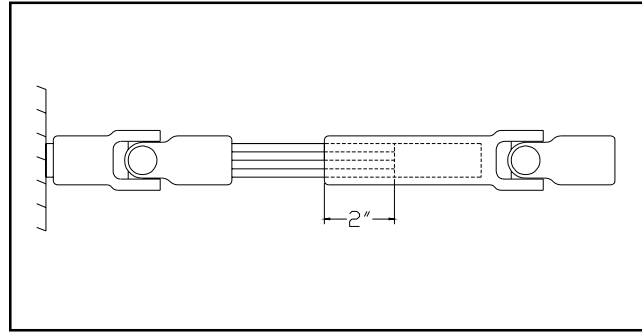
4. Align and insert the Tractor PTO splined shaft into the Broom PTO receiver.

Note: The PTO Shafts will only align and insert in one position as indicated by the white mark on the Tractor PTO splined shaft and the decal on the Broom PTO shaft.

The Tractor may need to be moved slightly to allow the PTO shafts to be coupled.

Note: See PUMP MOUNTING for installing Broom on Tractors with different PTO shaft lengths.

IMPORTANT: Ensure 2" of PTO shaft engagement with implement shaft. If not, the implement shaft must be replaced with the appropriate length of shaft available from TORO Parts.



WARNING

- Improper PTO operation could result in failure of the PTO drive.
- Failure of the PTO drive could damage the implement, Tractor, or result in serious personal injury or death.
- Read the Tractor and implement manuals and be familiar with PTO operation.

5. Either drive or roll the Tractor forward until the Quick Attach Tractor receiver brackets are aligned over the tapered pins of the implement brackets on the Broom.

6. Using the lift control, lower the push arms so that the left Tractor receiver bracket starts to go down over the tapered pins on the left implement bracket.

Watch that the right Tractor receiver bracket is aligned with the tapered pins on the right implement bracket. If not, the Broom or Tractor should be adjusted until the pins align.

Once all the pins are aligned, the push arms can be lowered using the lift control until the left Tractor receiver bracket is lowered fully onto the tapered pins.

To lower the right push arm so that the Tractor receiver bracket engages fully on the tapered pins, place your foot firmly near the end of the push arm and press down. With pressure on foot, insert the quick pins in the holes at the top of the tapered pins and lock rings in place.

Insert the quick pins in the left tapered pins and lock rings in place.

7. Install arm lock brackets using 1/2" x 4" pins and secure with retaining pins.

8. Place lift control in "float" position.

9. Rotate the Quick Attach engagement lock fully forward so that it stops against the lift arm.

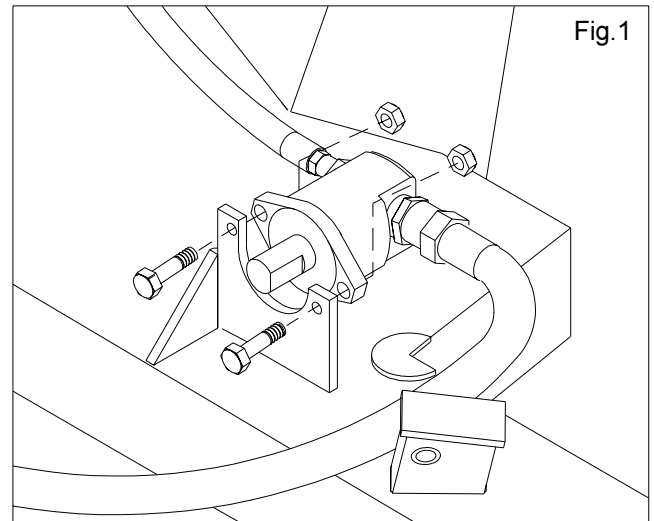
IMPORTANT: The engagement lever must be rotated fully forward before operating the Tractor or damage to the Tractor and \ or the Quick Attach could occur.

10. Install Broom lift chain

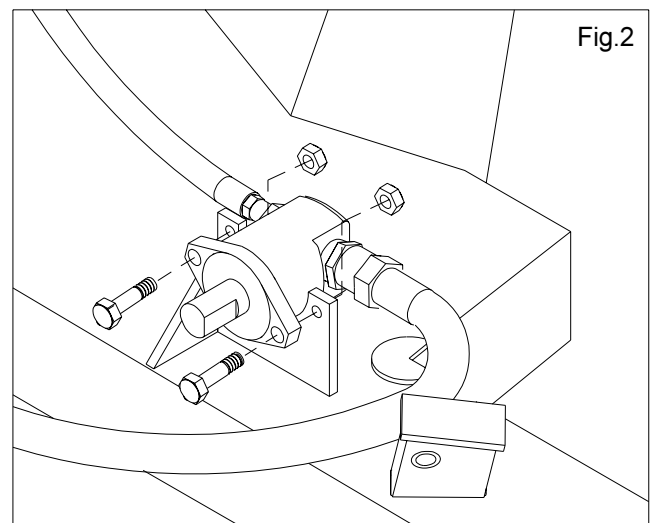
11. Connect wire from control box to actuator plug. (Option)

PUMP MOUNTING

IMPORTANT: The pump needs to be mounted differently on Tractors that have been equipped with different cutting decks. If the pump is not mounted correctly the PTO shaft could separate under some circumstances



GM300 with Side Discharge / Rear Discharge Deck (8 1/2" of male spline)



GM300 with Recycler Cutting Deck (6 3/4" of male spline)

Install Rear Weight

To comply with CEN standard EN 836:1997, ISO standard 5395:1990 and ANSI/OPEI B71.4—1999 Standard, rear weight must be added to rear of traction unit. Use chart below to determine weight requirements. Order parts from your local Authorized Toro Distributor.

Two Wheel Drive

Attachment Description	Rear Weight Required	Weight Part Number	Weight Description	Qty.
Rotary Broom (Model No. 30743)	140 lb.	24-5780	Rear Weight Kit (two 35 lb. weights and mounting hardware)	2

Four Wheel Drive

Attachment Description	Rear Weight Required	Weight Part Number	Weight Description	Qty.
Rotary Broom (Model No. 30743)	70 lb.	24-5780	Rear Weight Kit (two 35 lb. weights and mounting hardware)	1

BEFORE OPERATING

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 its tips; the brush is now working with the sides of the bristles. This limits the flicking action of the bristles and limits its sweeping effectiveness.

To check for correct downward pressure, operate brush on the ground, rotating at normal operating speed with Tractor remaining stationary. Stop operation, raise brush and measure width of swept path. A properly adjusted brush will have a sweeping path (flat spot on ground) width of 2" - 4". (See Fig. 3)

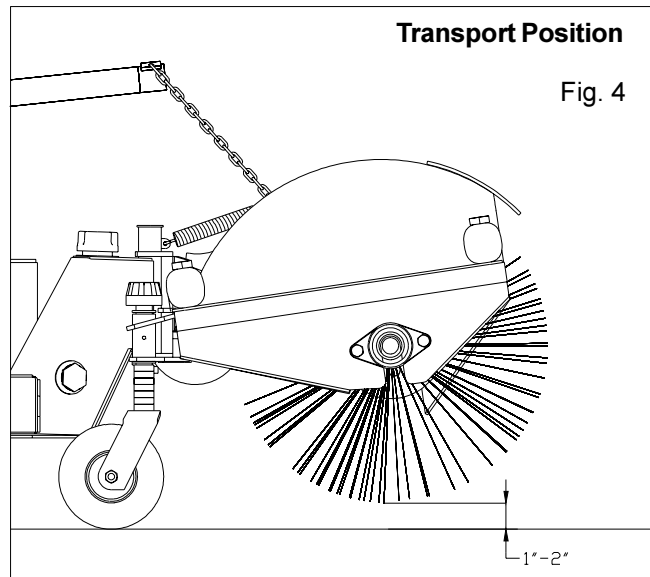
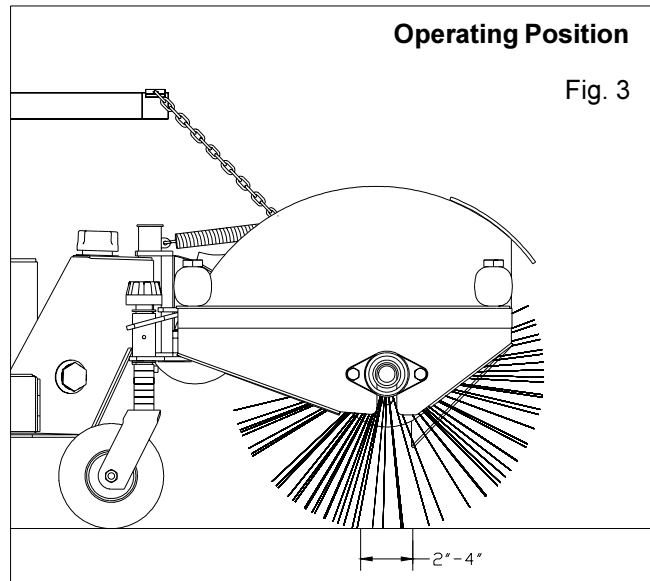
If ground speed is too fast, debris will pile up in front of brush causing brush to bulldoze instead of sweep. This can damage the bristles and the drive line.

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

1. Start Tractor and raise Broom by shortening chain or positioning on ground rise. Stop engine after Broom is raised.
2. Remove cap securing castor spindle to frame bracket and lower castor.
3. To remove spacers from bottom, lift lowest spacer .25 inch and rotate until the opening in the spacer aligns with the slot on the castor spindle and slides off. To add spacers to the bottom, lift lowest spacer until slot on castor spindle is exposed and a spacer can be slid onto castor spindle.
4. 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.
5. Reinstall cap, lower Broom and correct Broom chain length.

BROOM LIFT CHAIN TENSION

With castors adjusted for 2" - 4" brush flat spot on ground (See Fig.3) adjust lift chain so, in transport lift position, the brush is raised approximately 1-2" off ground with castors still on ground. Chain should not lift castors off of ground. (See Fig.4)



CHECK HYDRAULIC SYSTEM

The hydraulic system is designed to operate on Mobil 424 hydraulic oil. The machine has a 10-gallon reservoir; verify that the reservoir is filled before initial operation and daily thereafter.

To check hydraulic oil:

1. Position machine on a level surface.
2. View oil level in site glass.
3. Add oil until oil shows 1/4 way up on site glass.

IMPORTANT: To prevent system contamination, clean top of hydraulic oil containers before puncturing seal. Assure pour spout and funnel are clean.

OPERATING INSTRUCTIONS



WARNING

DEBRIS HAS CONSIDERABLE FORCE AND COULD CAUSE INJURY.

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

OPERATION

1. Lower Broom to ground and place lever in float position.
2. Increase engine speed to full throttle position.
3. Engage PTO lever.
4. Drive Tractor at a slow, comfortable speed.

BROOM ANGLE

Manual Swivel

To set broom angle straight, left or right remove pin from manual swivel, swivel Broom head to desired position and replace pin.

Electric Swivel Option (Model No. 30728)

Toggle control box Broom Angle switch left or right until desired position is reached and release switch.

OPERATING TIPS

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

1. More pressure does not give a better sweep.
2. A level brush lasts longer.
3. Faster ground speed, the faster your brush will wear.

GROUND SPEED

Bulldozing produces a side thrust and excessive stress on the Broom. 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.

CURB CLIMBING AND TRAILER LOADING

When climbing curbs or loading Broom on trailer, raise Broom to transport position and drive forward slowly. The curb or trailer ramp will contact brush bristles and raise Broom for proper climbing.

LUBRICATION

The Broom must be lubricated regularly. If machine is operated under normal conditions, lubricate with No. 2 general purpose lithium base grease after every 8 hours of operation or daily, whichever comes first. Lubricate fittings immediately after washing, regardless of the interval listed.

1. The Broom has (9) fittings that must be lubricated. The lubrication points are: castor shaft bushing (2), Broom head pivot (1), rotor bearing (1), rotor yoke (1) and Broom lift pivot tubes (4).

OPERATING INSTRUCTIONS



CAUTION

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

DISCONNECTING BROOM FROM TRACTOR - STANDARD PUSH ARM INSTALLATION

1. Position Tractor on level surface, lift Broom to highest position and remove 1/2" x 4" arm lock pins and arm lock brackets.
2. Lower Broom, shut off engine and engage parking brake.
3. Remove lift chain.



WARNING

Since the right hand push arm is spring-loaded to about 100 pounds and left hand push arm is spring-loaded to about 150 pounds, a helper is needed to push the push arm down. Sudden release of the push arm could cause injury.

4. Have a helper push down on the right push arm while you remove the cap screws, flat washers and flange nuts securing ball joint mount to Broom. Now the helper can carefully allow push arm to move upward, which will gradually release the 100 pounds of spring load.
5. Have a helper push down on the left push arm while you remove the cap screws, flat washers and flange nuts securing ball joint mount to Broom. Now the helper can carefully allow push arm to move upward which will gradually release the 150 pounds of spring load.
6. Disconnect wire from control box to actuator plug. (Option)
7. Back Tractor away from Broom.

DISCONNECTING BROOM FROM TRACTOR - QUICK ATTACH INSTALLATION

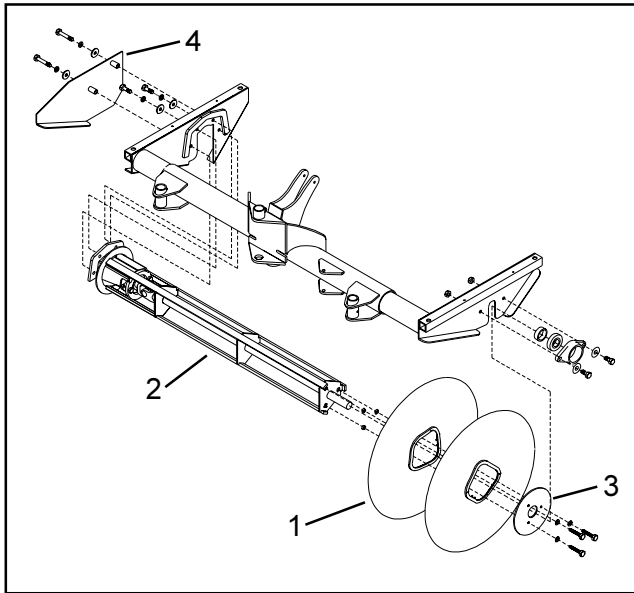
1. Position Tractor on level surface, lift Broom to highest position and remove 1/2" x 4" arm lock pins and arm lock brackets.
2. Lower Broom, shut off engine and engage parking brake.
3. Remove lift chain.
4. With the lift control in the "float" position, push the lift arm down so that the arm lowering engagement lock can be rotated rearward and then rotate the engagement lock fully rearward.
5. With Tractor running move the lift control to "lift" position for 2 seconds and then release. This puts downward pressure on the Broom / push arm connection.
6. Remove quick pins from the implement brackets.
7. Move the lift control to the "float" position to allow the push arms to raise up.
8. Disconnect wire from control box to actuator plug. (Option)
9. Back the Tractor away from the Broom.

IMPORTANT: When the lift control is placed in the "float" position, if the push arm / Broom connections do not release immediately the Tractor should be moved backwards or forwards slightly. Caution should be used when releasing stuck connections as the push arms are spring loaded and could move upward suddenly.

MAINTENANCE

CHANGING BRUSH ELEMENTS

The rotor assembly contains 34 brush elements.



- | | |
|-------------------------|----------|
| 1. Brush Element | 2. Rotor |
| 3. Brush Retainer Plate | 4. Guard |

1. Park machine on a level surface and lower Broom head.
2. Remove bearing housing bolts.
3. Remove bolts from guard and hydraulic motor mount.
4. Start Tractor and slowly raise Broom to highest possible position and turn off engine. Block up Broom frame so it cannot accidentally fall.
5. Remove brush retaining plate.
6. Slide brush elements off rotor.
7. Slide new brush elements onto rotor so alignment pins of element ride over extended bar of rotor.
8. Reinstall brush retaining plate.
9. Reinstall bearing housing, hydraulic motor mount and guard.

BROOM LIFT CHAIN TENSION

Note: Whenever brush elements are replaced or castor height adjusted the Lift Chain must be adjusted to apply proper downward brush pressure

With castors adjusted for 2" - 4" brush flat spot on ground (See Fig.3, Pg. 10) adjust lift chain so, in transport lift position, the brush is raised approximately 1 - 2" off ground with castors still on ground. Chain should not lift castors off of ground. (See Fig. 4, Pg 10)

CHANGING HYDRAULIC SYSTEM OIL AND FILTER

The hydraulic system filter must be changed initially, after the first 5 hours of operation, and thereafter every 200 hours of operation or yearly, whichever comes first. Use a suitable oil filter for replacement. The hydraulic oil must be changed every 200 hours of operation or yearly, whichever comes first. To change oil:

1. Park machine on a level surface, raise Broom and turn the engine off.
2. Place drain pan under drain plug in underside of tank. Remove drain plug. Remove reservoir cap.
3. Clean the area around the hydraulic oil filter. Remove filter from the bottom of the filter head and allow the oil to flow into a drain pan. Dispose of oil and filter properly.
4. Apply a film of oil on the filter gasket. Install filter by hand until gasket contacts filter head, then tighten filter an additional three-fourths turn.
5. Lower Broom to ground.

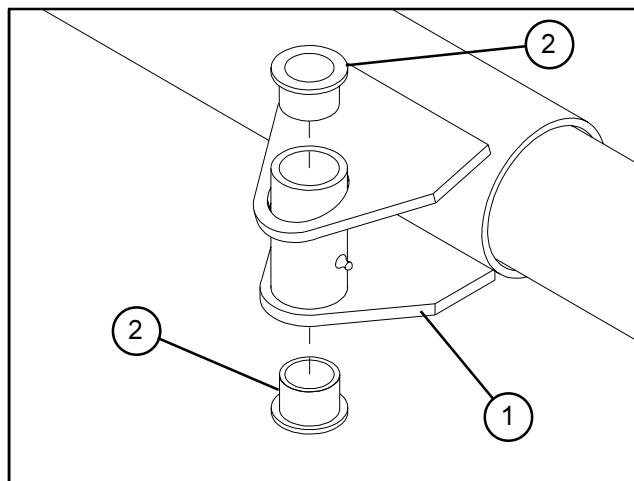
Note: Do not fill past 1/4 way up on sight glass.

6. Add 7 gallons of hydraulic oil to the reservoir (refer to Check Hydraulic System). Run brush for 1 minute, then add 3 additional gallons of oil or until level shows 1/4 way up on sight glass.
7. Check all connections for leaks.

SERVICING CASTOR FORK BUSHINGS

After many hours of operation, the bushings pressed into the top and bottom of the frame bracket 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 Tractor and raise Broom to highest possible position and turn off engine. Block up Broom frame so it cannot accidentally fall.
2. Remove cap and thrust washers from top of castor spindle.
3. Pull castor spindle out of bracket. Allow thrust washers to remain on bottom of spindle.
4. Insert pin punch into top or bottom of bracket and drive bushing out of tube. Also drive other bushing out of bracket. Clean inside of bracket to remove any dirt.



1. Bracket

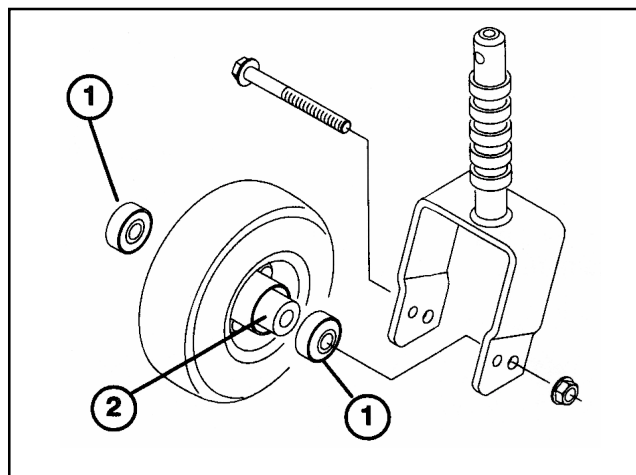
2. Bushing

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

SERVICING CASTOR WHEEL AND BEARING

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

1. Remove locknut from cap screw holding castor wheel assembly in castor fork. Grasp castor wheel and slide cap screw out of fork.
2. Remove outer bearing from wheel hub and allow bearing spacer to fall out. Remove outer bearing from opposite side of wheel hub.



1. Bearing

2. Spacer

3. Check the bearings, spacer 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 bearing spacer into wheel hub. Push other bearing into open end of wheel hub to captivate the spacer inside the wheel hub.
5. Install castor wheel assembly in castor fork and secure in place with cap screw and locknut.

The Toro Commercial Products Two Year Limited Warranty

The Toro Company warrants your 1996 or newer Toro Commercial ("Product") purchased after January 1, 1997, to be free from defects in materials or workmanship for the period of time listed below*. Where a warrantable condition exists, Toro 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.

Owner Responsibilities:

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

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
8111 Lyndale Avenue South
Minneapolis, MN. 55420-1196
Telephone: (612) 888-8801
Facsimile: (612) 887-8258
E-Mail: Commercial.Service@Toro.Com

Maintenance Parts:

Parts scheduled for replacement as required maintenance ("Maintenance Parts"), are warranted for the period of time up to the scheduled replacement time for that part.

Items/Conditions Not Covered:

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. The items / conditions listed below are not covered by this warranty:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories are not covered.
- Product failures which results from failure to perform required maintenance and/or adjustments are not covered
- Product failures which results from operating the Product in an abusive, negligent or reckless manner are not covered

- This warranty does not apply to 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.
- This warranty does not apply to 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.
- This warranty does not apply to 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.

Other Legal Disclaimers:

The above remedy of product defects through repair by an authorized distributor or dealer is the purchaser's sole remedy for any defect. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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 the express warranty.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The Toro Company is not liable for indirect, incidental or consequential damages in connection with the use of the Product, including any cost or expense of providing substitute Product or service during periods of malfunction or non-use.

Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

Note to California residents: 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), or the California Air Resource Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the California Emission Control Warranty Statement printed in your Owner's Manual or contained in the engine manufacturer's documentation for details.