FORM NO. 3318–763 Rev. A

TORO

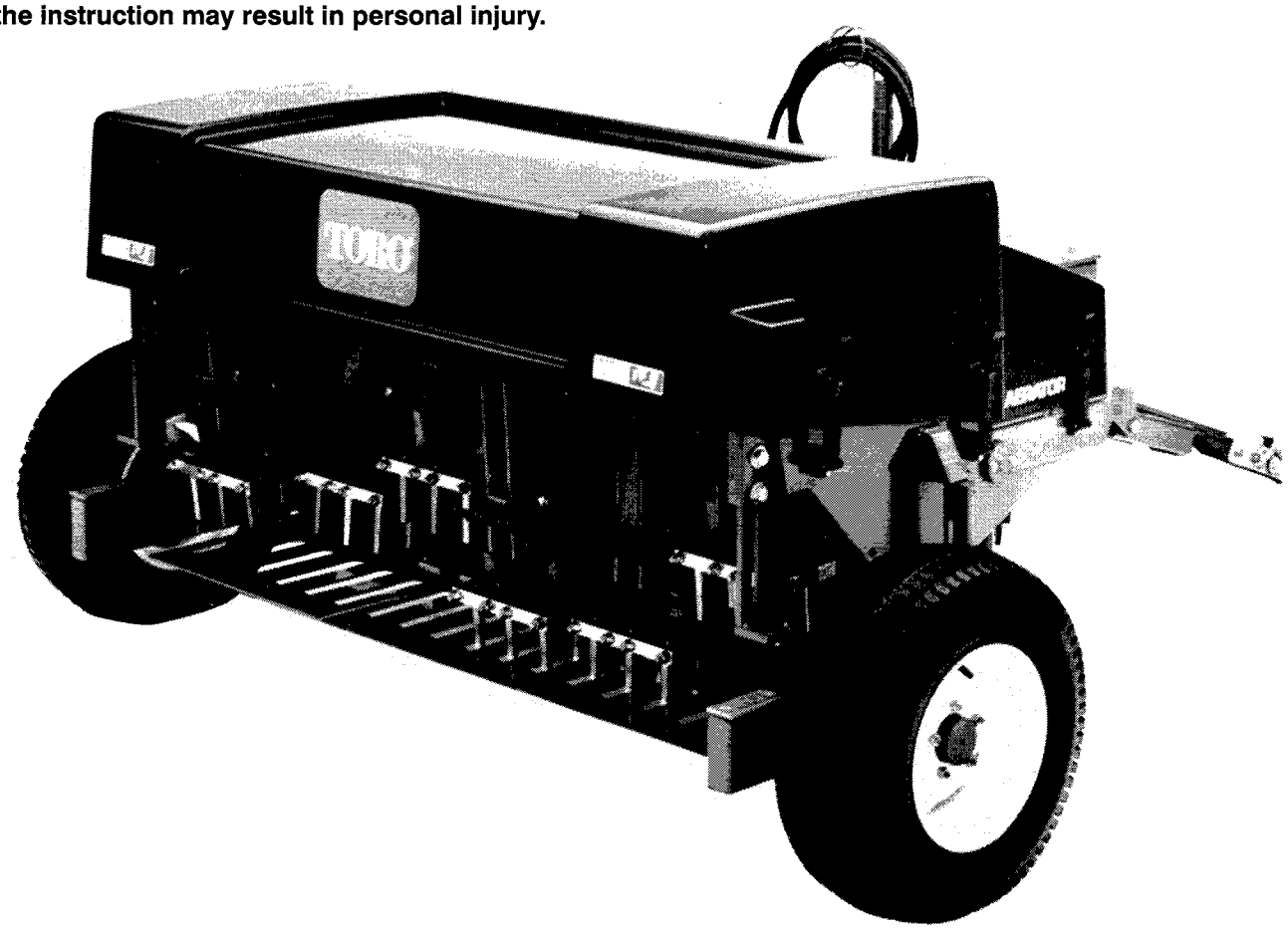
MODEL NO. 09502 – 70001 & Up

OPERATORS MANUAL

FAIRWAY AERATOR

To understand this product, and for safety and optimum performance, read this manual before starting operation. Pay special attention to SAFETY INSTRUCTIONS highlighted by this symbol.

It means CAUTION, WARNING or DANGER – personal safety instruction. Failure to comply with the instruction may result in personal injury.



FOREWORD

The Fairway Aerator has advanced concepts in engineering and design, and if properly maintained, will provide excellent service.

Since the Fairway Aerator is a high quality product, TORO is concerned about its future use and safety of the user. Therefore, anyone involved with the product, including the operator, should read and understand this manual. Major sections are:

- **Safety Instructions**
- **Specifications**
- **Before Operating**
- **Operating Instructions**
- **Lubrication**
- **Maintenance**

This manual emphasizes safety, mechanical and general product information. DANGER, WARNING and CAUTION identify safety messages. Whenever the triangular safety alert symbol appears, understand the safety message that follows. For complete safety instructions, read page 3. IMPORTANT highlights special mechanical information and NOTE emphasizes general product information worthy of special attention.

If help concerning set–up, operation, maintenance or safety is ever needed, contact the local Authorized TORO Distributor. In addition to genuine TORO replacement parts, the distributor also has optional equipment for the complete line of TORO turf care equipment. Keep your Toro all TORO. Buy genuine TORO replacement parts and accessories.

TABLE OF CONTENTS

SAFETY INSTRUCTIONS

BEFORE OPERATING

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

The Toro Company
8111 Lyndale Avenue South
Minneapolis, MN 55420

2. Do not allow children to operate the machine. Do not allow adults to operate the machine without proper instruction.

3. Remove debris or objects that might interfere with operation. Keep bystanders away from the work area.

4. Keep all shields and safety devices in place. If a safety device, shield or decal malfunctions, becomes damaged or illegible, replace it before operation is commenced. To assure machine is in safe operating condition, tighten loose nuts, bolts and screws.

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

WHILE OPERATING

6. Using the machine demands attention. To prevent loss of control:

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

B. Watch for holes or other hidden hazards.

C. Do not transport machine close to sand traps, ditches, creeks or other hazards.

D. Reduce speed on side hills and before making sharp turns to prevent tipping or loss of control.

E. Look behind the aerator before backing up.

7. If the tines strike a solid object or the machine vibrates abnormally, raise coring head, disengage power to aerator, stop prime mover, and engage parking brake before leaving the operator's position. Lift safety/transport stands to full upright position and lower coring head onto stands. Stop engine and disengage power to aerator before making repairs or adjustments. Inspect coring head and other machine parts for damaged or malfunctioning parts and repair or replace before resuming operation. Be sure all parts are in good condition and all fasteners are tight.

8. Before leaving machine unattended, raise coring head, disengage power to aerator and set parking brake Lift safety/transport stands to full upright position and lower coring head onto stands. Stop engine.

9. Never dismount while prime mover is in motion. Never get on or off prime mover while engine is running and PTO drive shaft is engaged. Never step over PTO shaft to reach other side of aerator – walk around the machine.

10. Before transporting machine from one area to another, raise coring head, stop prime mover, shift into neutral and engage parking brake. Lift safety/transport stands to full upright position and lower coring head onto stands.

11. Park aerator on a level surface and chock wheels before disconnecting from prime mover.

12. If it is necessary to probe below the soil surface, use a non conductive material to prevent electrical shock in case electrical wires are present.

MAINTENANCE

13. Before servicing machine, raise coring head, disengage power to aerator, shift prime mover into neutral and set parking brake. Lift safety/transport stands to full upright position and lower coring head onto stands. Stop engine. Disconnect PTO shaft and hydraulic hose connection.

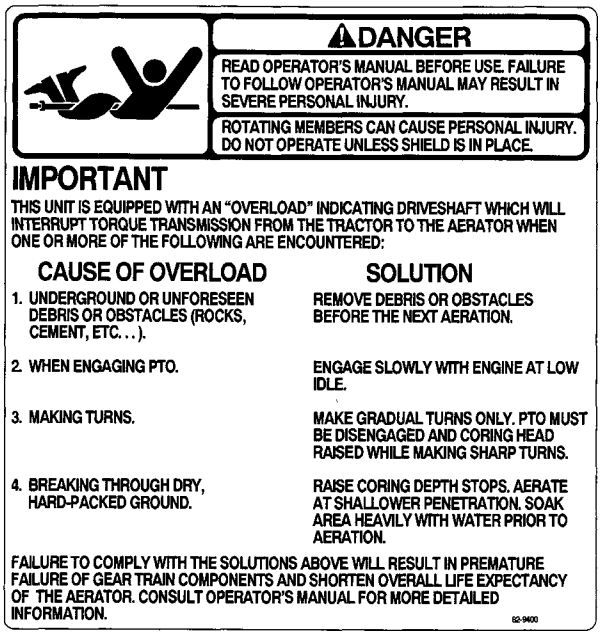
14. Ensure machine is in safe operating condition. Keep nuts, bolts and screws tight. Check tine mounting nuts and bolts frequently to insure they are tightened to specification.

15. Before applying hydraulic pressure to the system, be sure all hydraulic line connectors are tight and hydraulic hoses and lines are in good condition.

16. Keep body and hands away from pin hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin and do serious damage. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

SAFETY AND INSTRUCTION DECALS

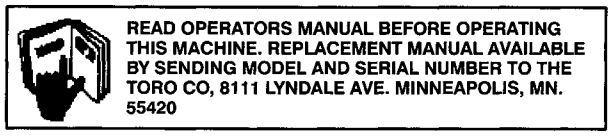
The following decals are installed on the machine. If any become damaged or illegible, replace it. The decal part number is listed below and in your parts catalog. Replacement decals can be ordered from your Authorized Toro Distributor.



On PTO Shield
(Part No. 82–9400)

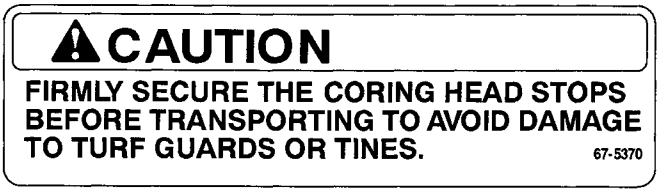
On Rear Drive Shaft
(Part No. 92–1582)

On Front Drive Shaft
(Part No. 92–7937)



On Front Pick–off Gearbox
(Part No. 65–3090)

On Transport Stands (2)
(Part No. 67–5370)



On Front Pick–off Gearbox and
Coring Head Oil Reservoir
(Part No. 67–5360)

On Rear of Rear Cover (2) and
on Coring Head Oil Reservoir (2)
(Part No. 59–9930)

On Rear Drive Shaft
(Part No. 92–1581)

On Front Drive Shaft
(Part No. 92–7936)

SPECIFICATIONS

Type: Three wheel, PTO driven, tow behind deep coring turf/fairway aerator.

Tractor Requirements: 35–45 hp @ standard power take–off speeds.

Travel Speed: 1.8 to 2.2 mph (2.9 to 3.5 km/hr).

Maximum PTO Speed: 540 rpm.

Maximum Top Crankshaft Speed: 400 rpm.

Frame Construction: Welded tubular and structural steel.

Coring Head Construction: Welded structural steel bar and plate.

Axles

Front – Two single row, roller ball bearing king pin with UHMW thrust washer, castor type, and two single row, taper roller bearing supported fork type spindle shaft.

Rear – Two single row, taper roller bearing (each axle) stub shaft type.

Tires

Rear – 23 x 8.50–12 (4 PR) tubeless.
Front –18 x 9.50–8 (4 PR) tubeless.

Hitch Construction: Bolt–on welded tubular and structural steel.

Hitch: Adjustable in five 3–1/2" (89 mm) spacings for various hitch to PTO configurations.

Ball Coupler: SAE Class 2 for 3" (76 mm) channel, bolt on. 3500 lb (1587 kg) GVW for 2" (51 mm) ball.

Ball: 2" (51 mm) forged ball with 1" – 14 UNEF thread and 2" (51 mm) long shank. SAE Class 3, 5000 lb (2268 kg) GVW.

Drive Shafts

Front – Ag–type, 2400 series with plastic safety shield, quik–lok on tractor end, radial pin overload indicating clutch on implement end.
Operating stroke from center line of each bearing cross: 36" minimum (collapsed) to 50–1/4" maximum (extended).

Rear – Ag–type 14 R series with plastic safety shield. Quik–lok on both ends.

Gear Cases: PTO shaft driven front gear case with spur type gears, a right angle gear case with bevel gears and three individual gear cases with spur gears. Integral gear cases lubed by integral structural tube reservoir. Reservoir level checked by dipstick in fill port.

Lubrication: Coring Head Gear Case Reservoir, Right Angle Gear Case and Front Gear Case are all filled at the factory with SAE 80–90 gear oil. Use No. 2 General Purpose Lithium Base Grease in grease fittings.

Lift Cylinder: Single–acting cylinder. Uses tractor hydraulic system to lower and raise coring head.

Hydraulic Hose: 3/8 x 120" (9.5 mm x 304.8 cm), SAE 100R1A.

Quick Coupler: 1/2 – 14 FE NPT ends. Meets ISO, SAE and ASAE interchangeability requirements.

Hose Stand: Adjusts from 44 to 54–1/2"(112 to 138 cm) at three 3–1/2" (89 mm) increments (ground to center of hose holder).

Safety/Transport Stands: Swing–up safety/transport stands prevent accidental lowering of coring head during service and/or converting turf guards. Are to be used to lock unit up during transport operation.

Turf Guards: Three; each semi–rigid mounted with compression spring floatation and front mounted rollers.

Rollers: Three each (one per each turf guard) mounted independently to front of each turf guard. 4–1/2" (11.4 cm) diameter; 11" (27.9 cm) long (flat portion).

Covers: 3/16" (4.76 mm) thick (minimum) black semi–gloss fiberglass reinforced resin. Secured to unit by flexible draw latches.

PTO Driveline Shield: Mounts to front gear case. Shields PTO driveline. Can be tipped up to service driveline.

Coring Capacity (theoretical) at 2.2 mph (3.5 km /hr)–Assumes no reduction in total area due to overlap, turning, stops, etc.

Coring Pattern – 6 Tines/Head, 3/4" x 4.75" or 5.75" long Tines
Effective Coring Width – 63" (160 cm)
Total Tine Quantity – 2 rows of 18 = 36
Hole Pattern – 6 tines 3–1/2 x 3" (8.9 x 7.6 cm)
Depth –To 3" (7.6 cm) with tine part no. 62–4600
–To 4" (10 cm) with tine part no. 86–9720
***Sq ft/hr(Sq m/hr)** – 60,984 sq ft/hr (5,665 sq m/hr)
***Acres/hr (hectares/hr)** –1.4 acres/hr (0.567 ha/hr)

Optional Coring Pattern – 2 Tines / Head. 7/8" x 7.00" long
Tines Effective Coring Width – 63" (160 cm)
Total Tine Quantity –1 row = 12 tines
Hole Pattern –2 tines 5–1/4 x 6" (13.3 x15.2 cm)
Depth –To 5" (12.7 cm)
***Sq ft/hr(Sq m/hr)** –60,984 sq ft/hr (5,665 sq m/hr)
***Acres/hr (hectares/hr)**–1.4 acres/hr (0.567 ha/hr)

SPECIFICATIONS

Dimensions:

Length	110" (279.4 cm)
Width	90" (228.6 cm) [from outside of tires]
Height	44" (111.8 cm)
Weight	2975 lb (1350 kg)
Wheel Base	44–1/2" (113.03 cm) with 4–1/4" (10.8 cm) rearward castor

Standard Equipment:

(12) 3/4" x 4.75" long tines (6 per tine block) and turf guards (tines not installed).

2" (51 mm), No. 3 forged hitch ball and female half of quick coupler (1/2–14 FE NPT)

Optional Equipment:

30 thru 40 tooth drive gears for front gear case. (Must select (2) gears per timing instructions on page 14).

(2) 7/8" tine blocks and turf guards

Tire Scraper Kit — Model No. 09151

Deep Coring Tine — Part No. 71–0940
Two 7/8 tubular tines, 8 tines total provides penetration depth up to 5.00". Tine holders and turf guards must be matched for this application.

Tubular Tine — Part No. 86–9720
Fits standard 6 tine holder. Provides penetration depth up to 4.00".

Tubular Tine — Part No. 62–4600
Fits standard 6 tine holder. Provides penetration depth up to 3.00".

Open Center Tine — Part No. 92–7900
Fits standard 6 tine holder. Provides penetration depth up to 4.00".

Open Center Tine — Part No. 92–7941
Fits standard 6 tine holder. Provides penetration depth up to 3.00".

LOOSE PARTS

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

Description	Qty	Use
Rear Axle Assembly	2	
Hex Hd Screw, 5/8–11 x 3–1/2"	8	Mount axles to frame
Hex Hd Locknut, 5/8	8	
Rear wheel & tire assy	2	Mount on rear axles.
Front wheel & tire assy	1	
Rim Support	1	Mount on front axle.
Wheel Hub	1	
Wheel Bolts	4	
Hitch Adapter	1	Install on front hitch tongue.
Hex Hd. Bolt, 1/2–13 x 2"	4	Secure hitch adapter.
Hitch Coupler	1	Install on hitch adapter.
Hex Hd. Bolt, 1/2–13 x 4"	2	Secure hitch coupler.
Hex Nut, 1/2–13	6	Secure hitch adapter & coupler.
Hitch Ball, 2"	1	Install on prime mover.
Extension Stand	1	Install on machine.
Hex Hd. Bolt, 5/16–18 x 1"	4	Secure extension stand.
Hex Nut, 5/16–18	4	
Hydraulic Hose Stand	1	Insert in extension stand.
Ball/Loc– Pin	1	Insert in hose & extension stand.
Hydraulic Hose	1	Install on machine. Connect end to prime mover.
Quick Coupler	1	Install on prime mover.
Drive Shaft Assy.	1	Install between gear case & right angle gear box.
Tine, 3/4	36	Install on coring head.
Front Drive Shaft Assy.	1	Install to front gear case & prime mover PTO shaft.
PTO Shield	1	
Hex Hd. Bolt, 3/8–16 x3/4"	2	Mount to front of gear box
Hex Hd Locknut, 3/8	2	
Flexible Draw Latch	8	Install on machine and covers.
Latch Backing Plate	6	
Front Guide Cover	4	Cover latch assy.
Hex Hd. Screw, 1/4–20 x1–1/2"	4	
Hex Hd. Screw, 1/4–20 x 1/2"	8	
Hex Hd. Screw, 1/4–20 x3/4"	12	
Flange Head Screw, 1/4–20x1/2"	8	Secure cover latches.
Flat Washer	4	
Hex Nut, 1/4–20	16	
Lockwasher, 1/4	8	
Front Aerator Cover	1	Install between front gear case and coring head assy.
Coring Head Cover	1	Install over coring head.
Filter Breather	1	Install in front gear box
Finger Plate & Roller Assembly (Turf guard)	3	
Shielded Spring Assembly	6	
Roll Pin	6	Install roller and finger plate assemblies
Dust Cover	6	
Locknut 3/8–16	6	
Height Adjusters	2	Mount to machine
Timing Bar	1	Used to re–time gear cases if disassemble is required
Operator's Manual	1	
Parts Catalog	1	
Registration Card	1	

Specifications and design subject to change without notice.

SET–UP INSTRUCTIONS

INSTALL REAR AXLE ASSEMBLIES

1. On both sides of the frame, insert mounting bolts through machine frame from inside toward the outside.

CAUTION

Coring head may have to be raised in order to install all bolts. To prevent possible personal injury, support coring head on the support stands after it has been raised.

2. Align axle assemblies with frame holes, insert capscrews through frame and thread into axle assemblies. Tighten capscrews to 90–120 ft–lb (122–163 N·m). Install hex nuts onto capscrews and tighten to 90–120 ft–lb (122–163 N·m).

INSTALL REAR WHEELS

1. Remove lug nuts from wheel hubs.

2. Mount wheels and install lug nuts (Fig. 1). tighten nuts to 40 – 50 ft–lb (54 – 68 N·m).

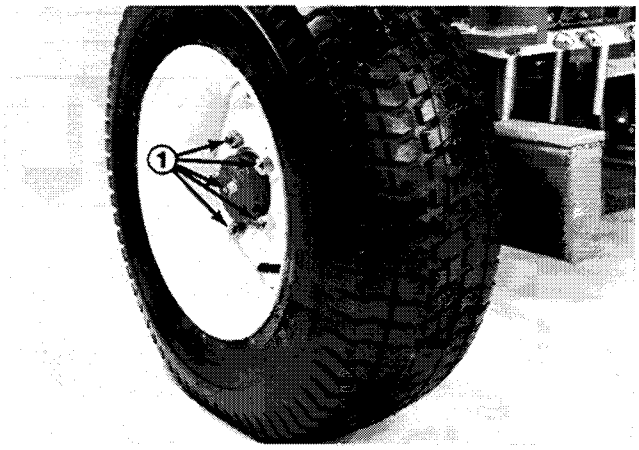


Figure 1

1.Wheel Lug Nuts

3. Adjust tire pressure to 16–18 psi (110–124 kPa).

INSTALL FRONT WHEEL ASSEMBLY

1. Remove locknut from axle shaft.

2. Install the rim support into the valve stem side of wheel assembly and the wheel hub into the opposite side (Fig. 2). Align the hub and rim holes, mount bolts through the rim support and thread into the wheel hub (Fig. 2). Tighten the bolts to 40–50 ft–lb ((54–68 N·m).

3. With castor fork weldment facing forward and valve stem on the left, install wheel and hub into castor fork (Fig. 2). Align mounting holes and ensure seal spacers are positioned in both sides of hub. Insert axle shaft through fork and wheel hub (Fig. 2). Install locknut and tighten until resistance is felt while rotating wheel by hand, then back nut off 1 flat. **DO NOT OVERTIGHTEN.**

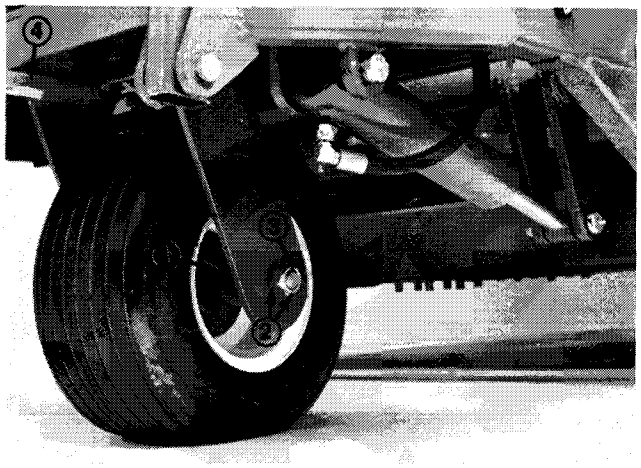


Figure 2

1. Rim Support **3. Locknut**
2. Axle Shaft **4. Castor Fork Weldment**

4. Adjust tire pressure to 16–18 psi (110–124 kPa) .

INSTALL HITCH BAR

1. Remove capscrews and hex nuts from frame mounting holes.

2. Align hitch bar mount holes with frame holes. Insert capscrews through frame and bar from the outside and thread into inside frame holes. Tighten capscrews so end play in bar is removed, but bar still pivots freely. Install hex nuts, hold capscrews and tighten nuts to secure capscrews in position.

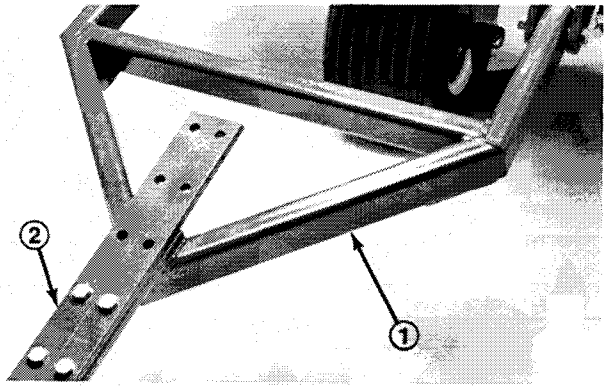


Figure 3

1.Hitch Bar 2. Hitch Adapter

Note: When mounting hitch bar to frame, it can be rotated 180° to accommodate tractors with low hitches. (Refer to Tractor Hitch Requirements, page14)

INSTALL HITCH ADAPTER, COUPLER & BALL

Note: Mount adapter at the shortest hitch point so allowance can be made for minimum and maximum stroke of the driveline during sharp turns; i.e., 36" (91 cm) minimum, 50–1/4" (128 cm) maximum.

SET–UP INSTRUCTIONS

1. Mount adapter to hitch, insert (4) 1/2–13 x 2" bolts through adapter and hitch and secure with (4) 1/2–13 hex nuts (Fig. 3).

2. Fit coupler over hitch, align holes, insert (2) 1/2–13 x 4" bolts and secure with (2) 1/2–13 hex nuts (Fig. 4).

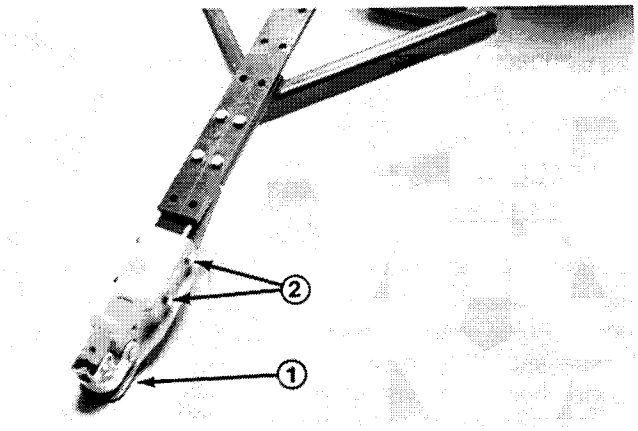


Figure 4

1. Hitch Coupler 2. Hitch Coupler Mount Bolts

3. If needed, install ball hitch to prime mover.

Note: Do not use an inferior grade ball; i.e., stamped ball with carriage bolt through middle.

INSTALL HYDRAULIC HOSE

1. Remove cap plug from fitting in top panel.

2. Install hydraulic hose and tighten fitting (Fig. 5). Wrap opposite end of hose with Teflon tape and install quick coupler male connector.

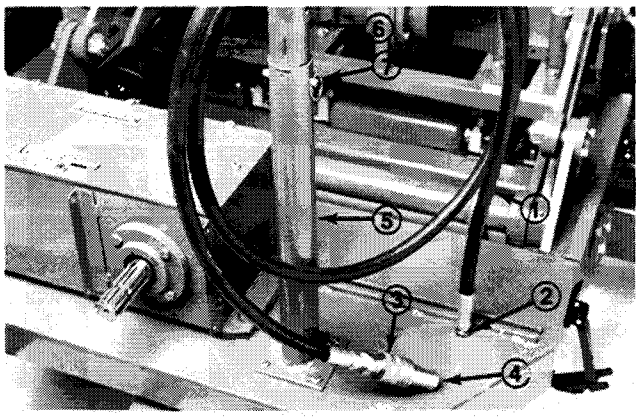


Figure 5

1. Hydraulic Hose
2. Top Panel Fitting
3. Quick Coupler
4. Male End
5. Hose Extension Stand
6. Extension
7. Ball–loc Pin

3. If needed, install female end of quick coupler to prime mover.

INSTALL HOSE EXTENSION STAND

1. Align base of stand with top panel holes to left side of front gear case.

2. Insert (4) 5/16–18 x 1" bolts from top and secure with hex nuts (Fig. 5).

3. Slip extension into stand, match holes at desired height and insert ball–loc pin to secure in position (Fig. 5). Mount hose in hose hanger.

INSTALL GEARBOX DRIVE SHAFT

1. With the largest diameter of drive shaft cover toward the right angle gear case, slide coupler sleeve back and mount drive shaft end to input shaft of right angle gear case (Fig. 6).

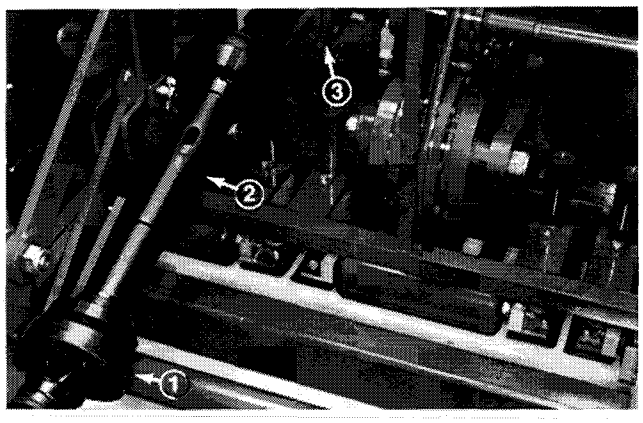


Figure 6

1. Gearbox Drive Shaft
2. Large Diameter Toward Gear
3. Right Angle Gear Case

2. Slide coupler sleeve back and mount opposite drive shaft end to output shaft of pick–off gear case (Fig. 6).

INSTALL FRONT DRIVE SHAFT

1. Align 21 tooth spline end of drive shaft with gear case input shaft. See illustration on drive shaft shield (Fig. 7).

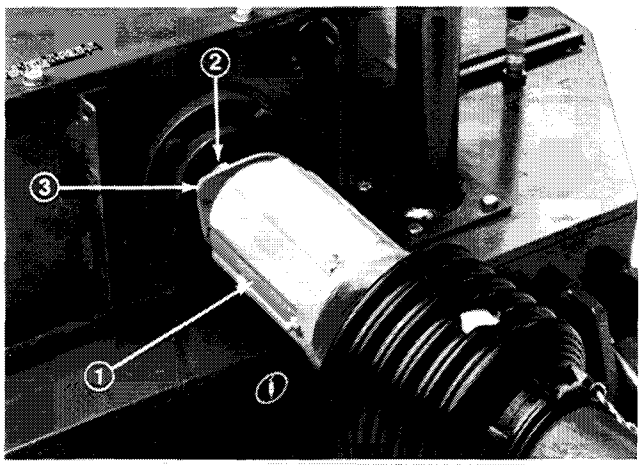


Figure 7

1. Front Driveline
2. Input Shaft
3. Locking Collar

2. Pull back on locking collar while sliding end of drive shaft onto input shaft until engaged (Fig. 7).

SET–UP INSTRUCTIONS

3. Secure chain from shield cone to frame of machine. This keeps guard from rotating and causing possible damage.(Fig. 8).

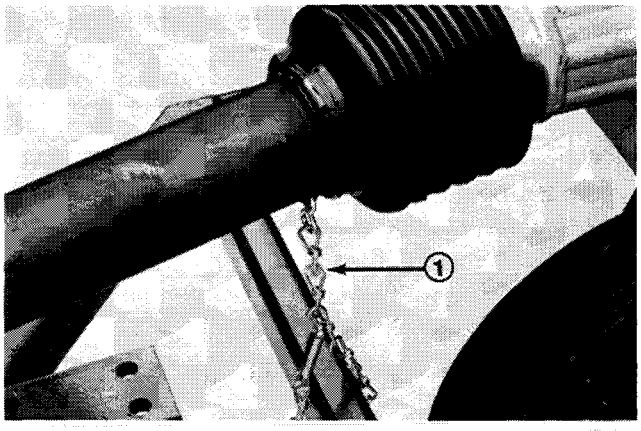


Figure 8
1. Chain

4. Mount cover shield to front gear case bracket with (2) 3/8 –16 x 3/4" capscrews and 3/8 – 16 locknuts (Fig. 9).

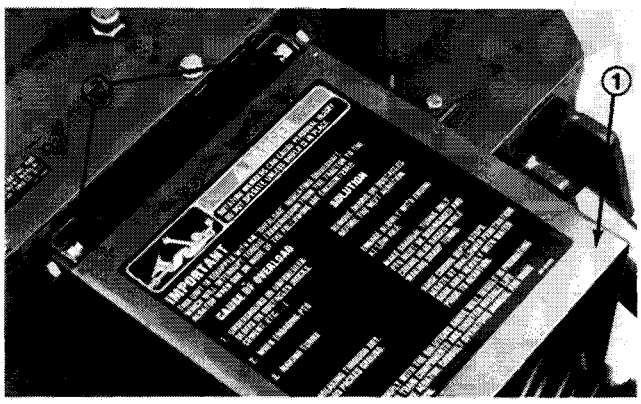


Figure 9
1. Cover Shield 2. Capscrew and Locknut

5. Install opposite end of driveline to PTO shaft of prime mover.

CAUTION

Stop engine and set parking brake before leaving prime mover to adjust drive shaft. Block wheels, before removing hitch adapter fasteners, to keep machine from moving and prevent possible personal injury and keep aerator from moving. Be sure all fasteners are tightly secured before continuing operation.

6. Start prime mover. Without engaging the PTO, operate aerator in turns and over slopes to ensure drive shaft operating stroke meets specification. Measured from bearing cross to bearing cross, its stroke should be between 36" minimum (collapsed) and 50–1/4" maximum (extended). Relocate hitch adapter if drive shaft stroke needs adjustment.

7. Connect hydraulic hose to prime mover. Adjust height of hose hanger to prevent hose damage by prime mover or aerator during operation.

INSTALL FRONT COVER LATCH ASSEMBLIES

1. Face curved portion of front cover guide upward and outward, align guide cover and flexible draw latch mount holes with frame mounting holes (Fig. 10). Secure assembly to machine with (2) 1/4–20 x 1/2" flange head screws (Fig. 10). Install two latch assemblies to each side.

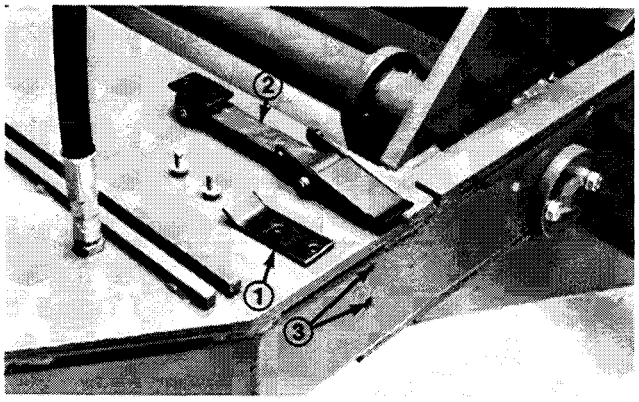


Figure 10
1. Guide Cover
2. Draw Latch– Turn Over to Install
3. Mounting Holes

2. At forward holes of front cover, insert (2) 1/4–20 x 3/4" hex head screws through keeper mounting holes and insert screws through cover holes (Fig. 11).

3. Inside the cover, slip a backing plate over the screws and secure assembly with (2) 1/4–20 hex nuts (Fig. 11). Repeat steps 2–3 to install keeper in forward hole on opposite side.

4. At rear holes of front cover, install (2) 1/4–20 x 1–1/2" hex head screws into keeper mount holes and insert screws through cover holes (Fig. 11).

5. Inside the cover, install a 1/4" flat washer onto each screw and secure assembly with (2) 1/4–20 hex nuts (Fig. 11). Repeat steps 4–5 to install keeper in hole on opposite side. Leave cover off until machine is ready for operation.

SET–UP INSTRUCTIONS

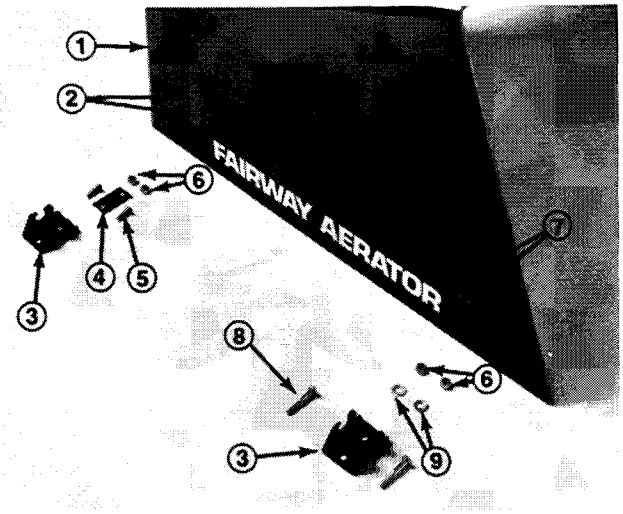


Figure 11

1. Front Cover
2. Forward Mount Holes
3. Keeper
4. Backing Plate
5. 1/4–20 x 1/2" Screws (2)
6. Hex Nuts
7. Rear Mount Holes
8. 1/4–20 x 1–1/2" Screws (2)
9. Flat Washers

INSTALL CORING HEAD COVER LATCH ASSEMBLIES

1. Install a 1/4" lockwasher on (2) 1/4–20 x 1/2" hex head screws (Fig. 12). Insert screws through flexible latch mount holes (Fig. 12). Thread capscrews into machine frame and tighten to secure assembly to machine. Use same process to install remaining three assemblies.

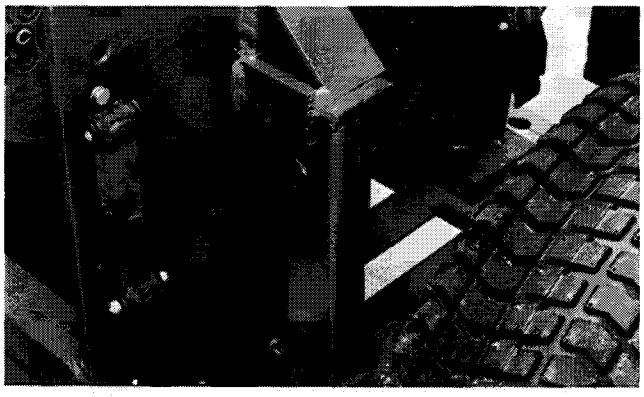


Figure 12

1. 1/4–20 x 1/2" Screws (2) Lockwashers
2. Draw Latch

2. At all four cover mount locations, insert (2) 1/4–20 x 3/4" hex head screws through keeper mount holes and insert screws through cover holes (Fig. 13).

3. Inside the cover, slip a backing plate over the screws and secure assembly with (2) 1/4–20 hex nuts (Fig. 13). Leave cover off until machine is ready for operation.

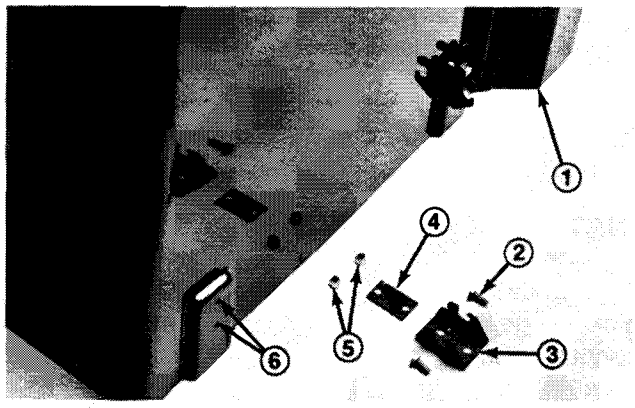


Figure 13

1. Coring Head Cover
2. 1/4–20 x 1–1/2" Screws (2)
3. Keeper
4. Backing Plate
5. Hex Nuts
6. Mounting Holes

INSTALL TINES

(Refer to Tine Selection Chart on page 23)

1. Loosen tine clamp fasteners for desired tine assembly: 3/4" tines (Fig. 14) or (optional) 7/8" tines (Fig. 15).

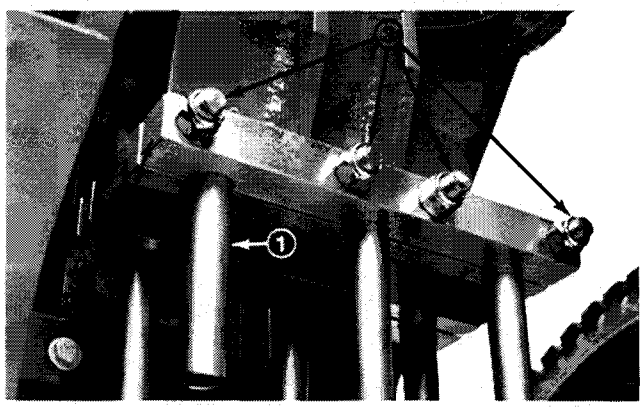


Figure 14

1. 3/4" Tines
2. Tine Blocks
3. Locknuts

Note: Depending on tine configuration selected, be sure the correct tine finger plate assemblies are installed (Fig. 15).

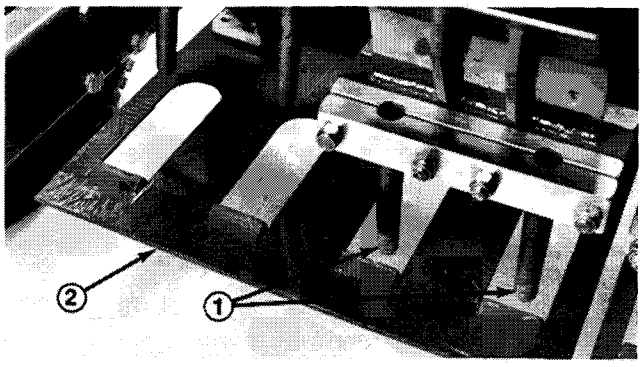


Figure 15

1. 7/8" Tines (Optional)
2. Finger Plate Assembly

2. Mount tines from the underside. Install until they bottom against steps in tine blocks (Fig. 14). To secure tines in blocks, tighten locknuts to 75 ft–lb (101 N·m).

SET–UP INSTRUCTIONS

Note: Use a board or other flat object to hold all (6) tines in position when tightening locknuts.

3. When slotted tines are used, slots should face forward on front row of tines and rearward on rear row of tines.

INSTALL FILTER/BREATHER

1. Remove the pipe plug from the cover of the pick–off gear case at the front of the machine. Wrap connector end of filter/breather with Teflon tape and install in cover (Fig. 16).

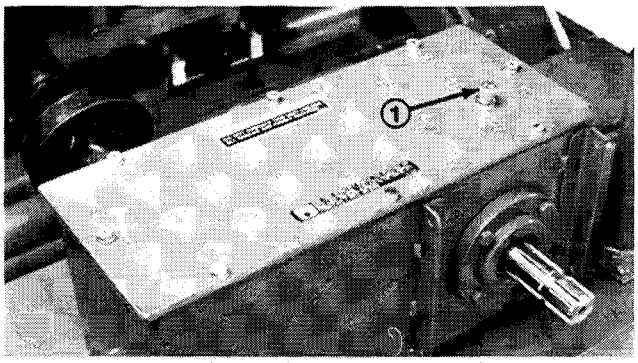


Figure 16
1. Filter/Breather

IMPORTANT: THE AERATOR IS SHIPPED WITH A PLUG INSTALLED IN THE END OF THE MAIN GEAR CASE VENT TUBE. REMOVE AND DISCARD PLUG BEFORE OPERATING MACHINE.

INSTALL ROLLER AND FINGER PLATE ASSEMBLIES

IMPORTANT: Finger plates must match selected tines for proper installation.

1. Install a shielded spring assembly onto each shaft (Fig. 17).

2. To ensure proper assembly, position the chamfered end of the spring assembly up to mate with the shoulder on the underside of the bushing (Fig.17).

3. Fit roller and plate assemblies under machine. Insert finger plate shafts (w/spring assemblies installed) into coring head frame bushings (Fig. 17) until hole in shaft clears top of bushing and roll pin can be installed, to secure assembly (Fig. 17).

4. Mount a dust shield over each bushing, while holding the 2" capscrew with a wrench. Install and tighten locknuts to secure dust shields in position (Fig. 17).

IMPORTANT: It is very important that the 2" capscrews be held securely when installing dust shields.

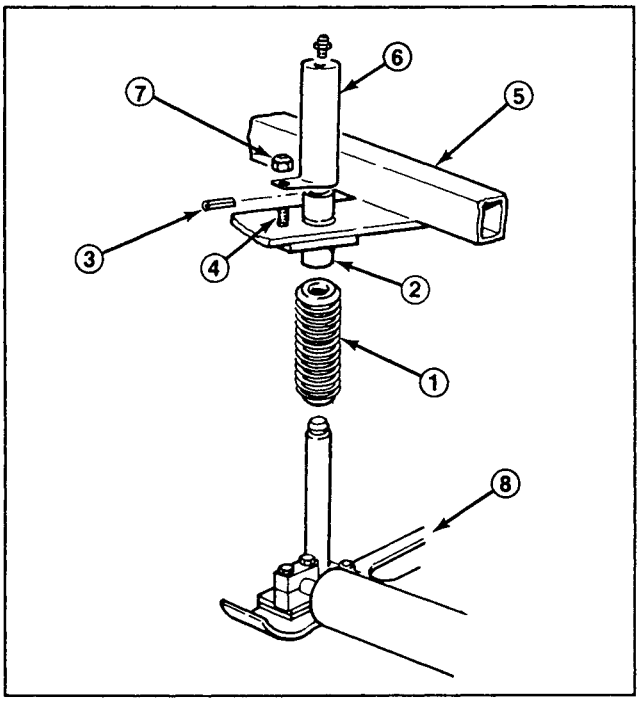


Figure 17

1. Shielded spring Assy	5. Coring Head Frame
2. Bushing (Installed)	6. Dust Shield
3. Roll Pin	7. Locknut
4. 2" Capscrew (Installed)	8. Finger plate & Roller Assy.

INSTALL HEIGHT ADJUSTERS

1. If coring head is lowered, attach quick coupler to tractor. Using hydraulic pressure, raise coring head.

CAUTION

To prevent possible personal injury, lift support stands and lower coring head onto stands before continuing installation.

2. Remove (2) height adjuster mounting capscrews and flat washers shipped on machine (Fig. 18)

3. With flange weldment facing the front of the machine, align height adjusters with frame mounting holes and secure with (2) capscrews and flat washers previously removed (Fig. 18).

LUBRICATE MACHINE

Using a hand grease gun, apply grease to all grease fittings except the drive shaft fittings. Use No. 2 General Purpose Lithium Base grease and slowly apply pressure until grease escapes from around the components or until pressure is felt against the gun. Refer to Lubrication, page 18, for location of fittings.

Note: Approximately 20 pumps will be required to lubricate each compression spring assembly.

BEFORE OPERATING

ADJUSTING TINE PENETRATION

To adjust equally on both sides:

1. Loosen capscrews securing the height adjusters (Fig. 18). Raise adjusters until bolt bottoms–out in slot.

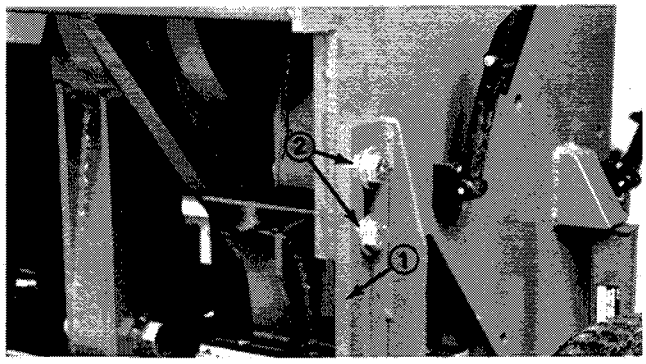


Figure 18
1. Height Adjuster
2. Height Adjuster Mounting Capscrews & Flatwashers

2. Maximum penetration depth of 5" (12.7 cm) for 7/8" (2 tine) and 3" (7.6 cm) for 3/4" (6 tine) configurations is achieved with height adjusters bottomed–out in slots. To adjust for less penetration, lower height adjusters; i.e., lowering 1/2" (13 mm) allows 4–1/2" (11.4 cm) penetration of 7/8" tines and 2–1/2" (6.4 cm) of 3/4" tines.

3. After adjusting to desired depth setting, tighten mounting capscrews to secure adjustment. Adjust height adjuster on opposite side to the same setting. Make sure tine blocks do not contact finger plates.

CHECK RESERVOIR & GEAR CASE OIL LEVELS

1. With machine on level surface, remove oil fill/dipstick plug from right angle gear case (Fig. 19).

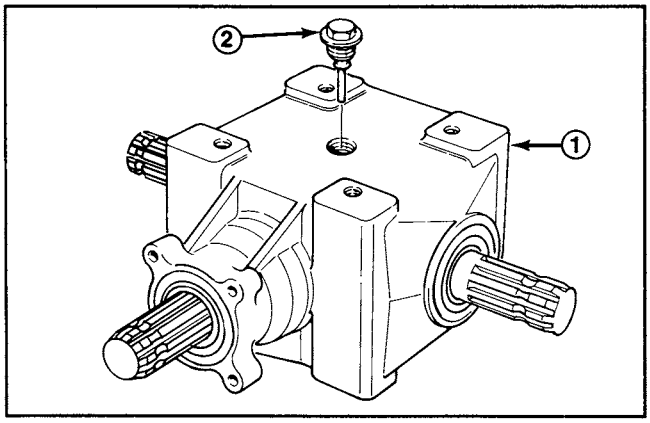


Figure 19
1. Right Angle Gear Case 2. Gear Case Fill Plug

2. Oil level should be to mark indicated on dipstick. If oil is required, add SAE EP 90W gear oil. Install the fill plug.

3. At rear of machine, remove dipstick assembly from reservoir. Oil level should be between marks on the dipstick (Fig. 20). If oil is required, add SAE EP 90W gear oil. Install the dipstick assembly.

4. Remove cover from pick–off gear case (Fig. 21). Oil level should be at midway point of gear shafts (Fig. 22). Should oil be needed, add SAE EP 90W gear oil. Replace gear case cover.

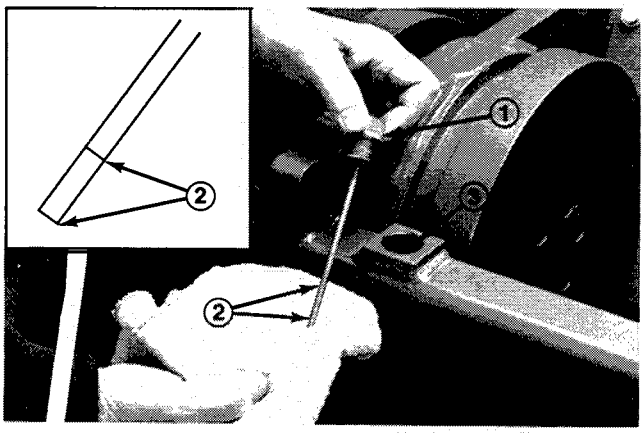


Figure 20
1. Fill Plug and Dipstick 3. Reservoir Fill hole
2. Oil Level Between Marks

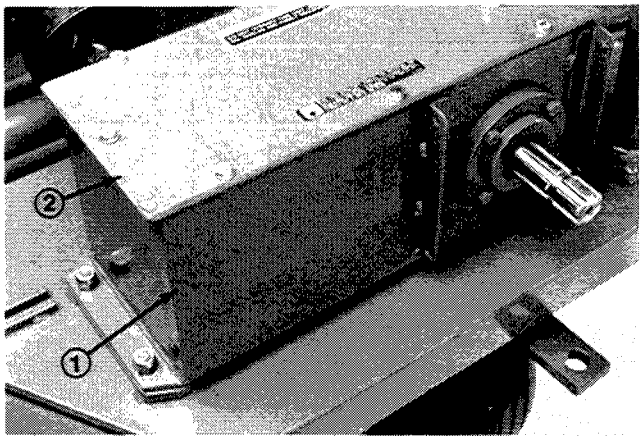


Figure 21
1. Pick–off Gear Case 2. Gear Case Cover

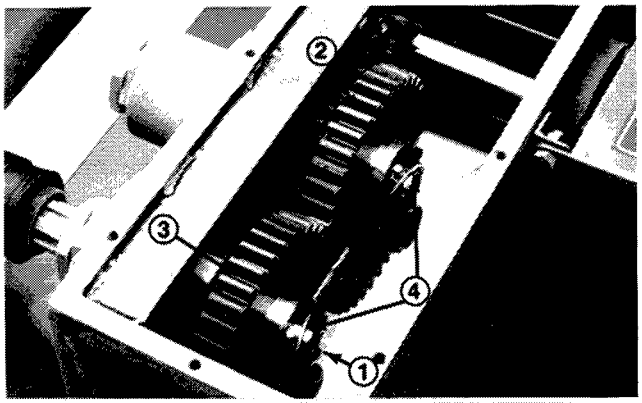


Figure 22
1. Oil Level to Center of Shafts 3 Driven Gear
2. Driver Gear 4. Lynch Pins

BEFORE OPERATING

TIMING THE AERATOR TO THE TRACTOR

Tractor Preparation

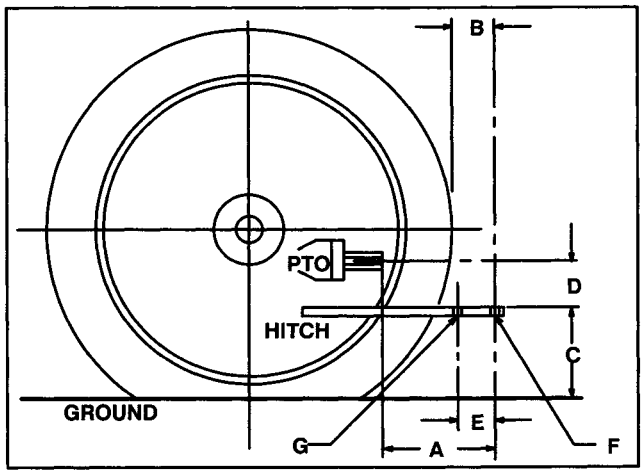
To operate the fairway aerator, the tractor must meet the following:

1. PTO rpm must be 540 at normal engine operating speed.

2. With PTO operating at 540 rpm, a transmission gear must be selected that allows tractor to operate 100 feet (30.5 m) within 30–38 seconds [1.8 – 2.2 mph (2.9 – 3.5 km/hr)].

Tractor Hitch Requirements: (Preferred)

A= 14"=End of PTO to hitch pin hole
B= 1"=Horizontal distance from hitch pin to tire
C= 15"=Height of hitch
D= 8"=Top of hitch to center line of PTO
E= 4"=Auxiliary hole spacing (not required)
F= .81" dia.= Hitch pin hole (min.)
G= .68" dia.=Auxiliary hole (not required)



To Set Tractor:

1. Find a test area and measure and mark off 100 ft (30.5 m).

2. Operate tractor engine at PTO speed of 540 rpm. Select a transmission gear and operate the tractor over the test area (with or without aerator). Record the time necessary to travel 100 ft (30.5 m).

Note: If tractor lacks a tachometer, measure PTO shaft rpm with a hand tachometer.

3. Make three passes and record the time intervals. Average operating time over 100 ft (30.5 m) should be between 30–38 seconds. If the time average is not within 30–38 seconds, select another transmission gear and recheck until the average falls within time limits.

IMPORTANT: Use the same tractor settings whenever operating the aerator. Never operate aerator in any gear except the one the tractor was timed in.

Preparing Aerator:

Install the proper timing gears in the aerator pick–off gear case. (Gears must be obtained from your Authorized Toro Distributor.) Use the following chart to determine which gears to use:

	Sec./100 ft	Gears (No. Teeth) Driver	Driven
INCREASE HOLE	**42.3**	**30**	**40**
SPACING	**39.9**	**31**	**39**
	37.7	**32**	**38**
Optimum	**35.5**	**33**	**37**
Vehicle	**33.6**	**34**	**36**
Speed	**31.7**	**35**	**35**
DECREASE HOLE	**30.0**	**36**	**34**
SPACING	**28.3**	**37**	**33**
	26.7	**38**	**32**
	25.2	**39**	**31**
	23.8	**40**	**30**

IMPORTANT: Selected driver and driven gear teeth must combine to add up to 70.

Gear Installation:

1. Remove the pick–off gear case cover (Fig. 21).

2. Remove the lynch pins used to secure the driver and driven gears (Fig. 22).

3. Install driver and driven gears matching indicated chart time and secure with lynch pins (Fig. 22).

Note: Number of gear teeth is stamped on the gear.

4. Install gear case cover, the front aerator cover and coring head cover. Verify timing of the aerator/tractor.

Verify Timing:

1. Raise coring head, set parking brake, stop engine and lower coring head supports.

2. With transmission in correct gear selection, operate the aerator a short distance, then raise coring head, disengage PTO and stop tractor. Set parking brake, lower coring head onto supports (Fig. 23) and stop engine.

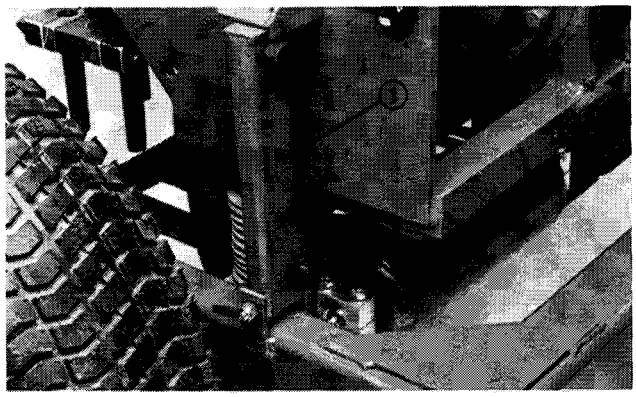


Figure 23
1.Coring Head Support (2)

IMPORTANT: Never operate the tractor PTO in excess of 540 rpm or damage to the aerator could occur.

3. In direction of machine travel, measure the distance between tine holes (one tine penetration stroke to another). Depending on tine configuration, the distance should be:

7/8" tines – 6–1/4 to 6–1/2" (158 to 165 mm)
3/4" tines – 3–1/8 to 3–1/4" (79 to 82 mm)

Note: To achieve optimum performance when using longer tines, use longer hole spacing.

Condition of the turf around the holes can also indicate how well the tractor is matched to the aerator. If the rear of the tine holes are torn, the tractor speed is too slow. On the other hand, if the front of the tine holes are torn, the tractor speed is too fast.

4. If the spacing is too short (coring speed too fast), increase the hole spacing; substitute the driver gear with a gear having less teeth and the driven gear with one having more teeth (Fig. 22). By contrast, if hole spacing is too long (coring speed too slow), driver gear teeth quantity should be increased and driven gear teeth decreased; see gear selection chart.

5. Operate machine again and repeat steps 1–4.

IMPORTANT: TIming can sometimes be fined tune by gradually regulating tractor tire pressure. Lowering tire pressure will provide closer spacing and raising tire pressure will increase the spacing.

CAUTION: Do not exceed the maximum or minimum inflation pressures as recommended by tire manufacturer.

OPERATION

TRAINING PERIOD

Before using the Fairway Aerator, find a clear area and practice using the machine. Operate the tractor at recommended gear settings and PTO drive speeds and become thoroughly familiar with machine handling. Practice stopping and starting, raising and lowering the coring head, disengaging the PTO drive and aligning the machine with previous passes. A practice session assures confidence in the performance of the Fairway Aerator and helps ensure use of proper operating techniques wherever the machine is operated.

If there are sprinkler heads, electrical or communication lines or other obstructions in the area to be aerated, mark these items to assure they are not damaged during operation.

CAUTION

To avoid personal injury, never leave the tractor seat without first setting the parking brake and disengaging the PTO drive. Never perform aerator repairs without first supporting the coring head on the support stands. Be sure all safety devices are secured in proper place before resuming operation.

BEFORE AERATING

Be sure the hydraulic hose extension stand is adjusted so the hose will stay clear of tractor and machine components and avoid damage and all safety devices are secured in place. Inspect the area of operation for hazards that could damage the machine and remove them, if possible, or plan how to avoid them. Carry replacement tines and tools to effect repairs should tines contact foreign materials.

NOTE: Ratcheting of the drive shaft clutch may occur frequently when the machine is new. A break–in period may be required. To speed–up break–in, remove tines, lift and support coring head, and run stationary for a few hours at operating speed. Monitor during this period.

CAUTION: Do not leave machine unattended and to avoid personal injury do not work on machine while it is running.

AERATING PROCEDURES

Before starting operation, stop the tractor, raise the coring head and set the parking brake. Leave the tractor seat and lower the coring head support stands on each side of the aerator. Return to the seat, set the PTO drive to 540 rpm, select the proper gear, release the parking brake and begin operation. When the tractor reaches proper ground speed, 1.8 to 2.2 mph (2.9 to 3.5 kph), lower the coring head. Although the aerator can be operated in slight curves, for best results operate in a straight line. If the machine must be turned sharply, raise the coring head and disengage the PTO drive. Otherwise, severe turf damage will result and the machine may also be damaged. While turning, ensure the tractor tires do not contact the hitch. Also, that the drive shaft is not compressed below 36", nor extended over 50–1/4" and the hydraulic hose does not catch or pinch between tractor and aerator components. The hitch, drive shaft or hose may be damaged.

Look behind frequently to ensure the machine is operating properly and alignment is maintained with previous passes.

Should the drive shaft ratchet during operation:

1. Raise the coring head, disengage the PTO drive and stop tractor immediately.

2. Set the parking brake, raise the coring head and place the head onto the stands.

3. Inspect the turf to determine the reason for the ratcheting or tine breakage. Locate where the problem occurred and insert a non–conductive probe into the aerator holes. If foreign material beneath the turf caused the damage, mark the location so the material can be either removed or avoided in future. If the ratcheting occurred because turf was too hard to penetrate, raise depth of penetration and try aerating the area again. Be sure all machine damage has been corrected before resuming operation; refer to step 5.

4. Always clear the area of all damaged machine parts, such as broken tines, etc., to prevent their being picked up by mowers or other turf maintenance equipment.

5. Replace broken tines, and inspect and correct damage to those still useable. Repair any other machine damage before commencing operation.

TRANSPORT OPERATION

To begin transport operation, raise the coring head, disengage the PTO drive and set the parking brake. Raise each coring head stand and lower the coring head onto the stands. To avoid loss of control, traverse steep inclines slowly, approach rough areas at reduced speed and cross severe undulations carefully. During sharp turns, take care the rear tractor tires do not contact the aerator hitch assembly.

Important: Do not exceed transport speeds of 15 mph (24 km/hr) or tire failure may occur.

OPERATION

INSPECTION AND CLEAN–UP AFTER USE

After daily use, thoroughly wash the machine with a garden hose without a nozzle so contamination and seal and bearing damage due to excessive water pressure will be avoided. A brush may be used to remove caked-on material. Use mild detergent to clean the covers. Applying a coat of auto wax periodically will retain the cover's glossy finish. After cleaning, inspect for machine damage, gear oil leakage, component and tine wear.

CHANGING TINE CONFIGURATION

To change one tine configuration to another:

1. Lift the coring head, disengage the PTO drive and set the parking brake. Raise each coring head and place the coring head onto the stands (Fig. 23). Remove the coring head cover and disconnect the gearbox drive shaft.

2. Remove (4) locknuts securing each finger plate assembly and remove the assembly (Fig. 24).

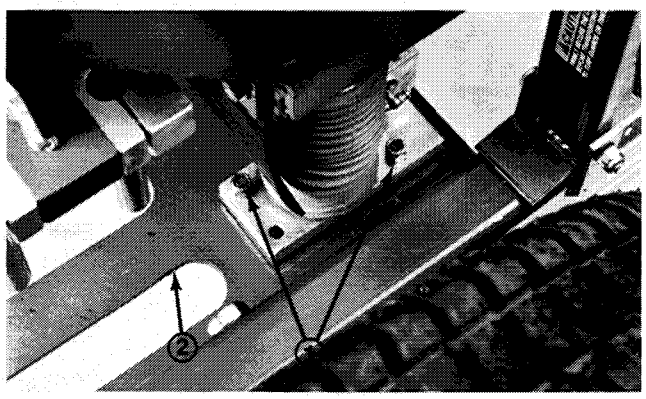


Figure 24
1. Locknuts 2. Finger Plate

3. Remove locknuts securing tines and remove tines (Fig. 25). Remove rear tine blocks and slide the front tine blocks and studs out of stomper assembly (Fig. 25).

Note: Manually rotate the right angle gearbox shaft to position stomper assemblies so front tine blocks can be removed.

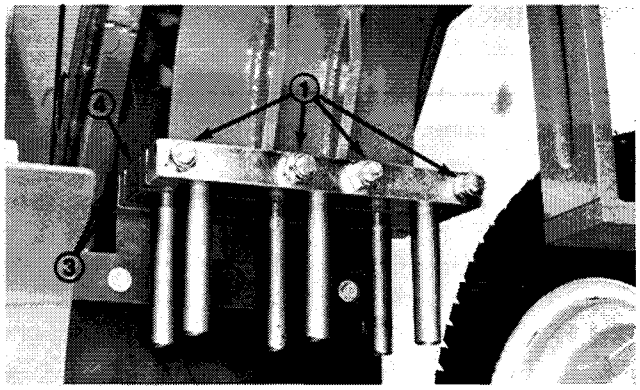


Figure 25
1. Locknuts 3. Front Tine Blocks
2. Rear Tine Blocks 4. Stomper Assembly

4. Install replacement tine blocks and tines and tighten the locknuts to secure the tines in position.

5. Install the proper turf guard assemblies and secure with locknuts.

6. Re–connect the gearbox drive shaft and install the coring head cover.

STOMPER ASSEMBLIES

IMPORTANT: Within the first five hours of initial machine operation and every 25 hours operation thereafter, all stomper assemblies must be checked for excessive lateral play. This must be done or major machine component failure may result. Refer to Checking Stomper Assemblies, page 21.

OPERATING TIPS

1. Gradually engage PTO at low engine speed and increase throttle to 540 PTO RPM before lowering coring head.

2. Make very gradual turns when aerating. Never make sharp turns with PTO drive engaged.

3. If tractor "bogs" down when operating on hard ground or going uphill, raise coring head slightly until speed is regained, then lower head again.

4. Do not aerate if ground is too hard or dry. Best results are obtained after a rain or when turf has been watered the previous day.

5. Raise coring head penetration, if ground is hard packed. Clean–up cores and re–aerate at deeper penetration, preferably after watering.

LUBRICATION

GREASING FITTINGS

Note: It is a good practice to lubricate the machine after washing machine.

The Fairway Aerator has grease fittings that must be lubricated with No. 2 General Purpose Lithium Base grease. Some require greasing daily, others every 25 hours operation, or seasonally, whichever comes first. Use a hand grease gun for all fittings. Disconnect one end of the drive shaft to access the center grease fittings.

GREASE THE FOLLOWING FITTINGS DAILY:

Component	No. Ftg.	Fig. No.
Drive shaft	5	26 & 27
Finger plate rollers	6	28
Tine arms	6	29

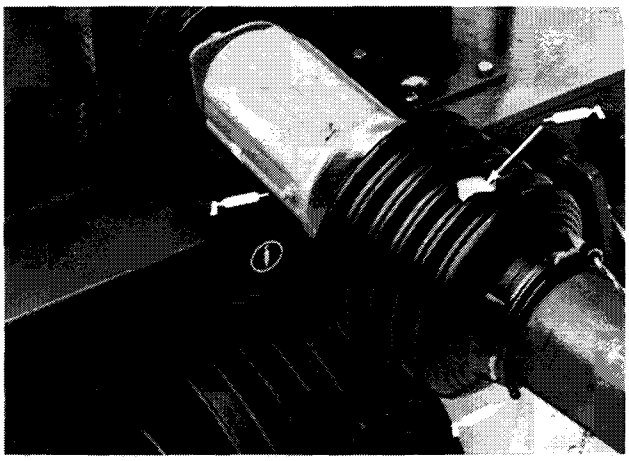


Figure 26
1. Drive Shaft (3)

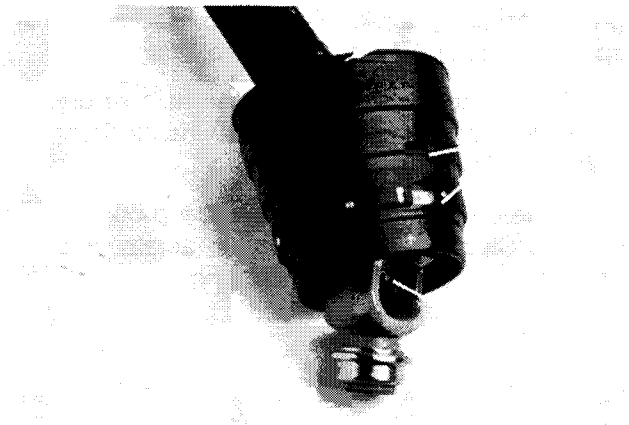


Figure 27
1. Drive Shaft (front)(2)
2. Drive Shaft (center)

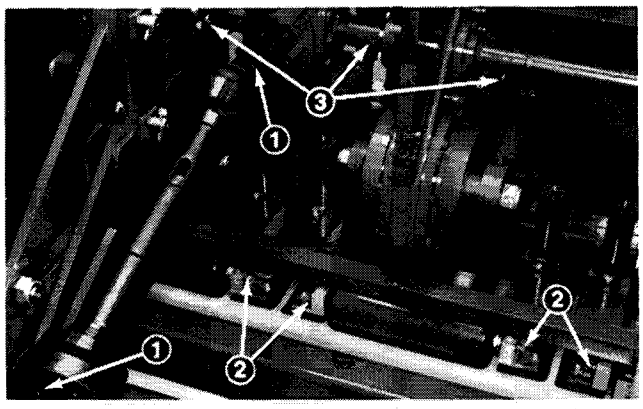


Figure 28
1. Driveshaft Ends (2)
2. Finger Plate Roller Bearings (6)
3. Drive shaft Assy. (4)

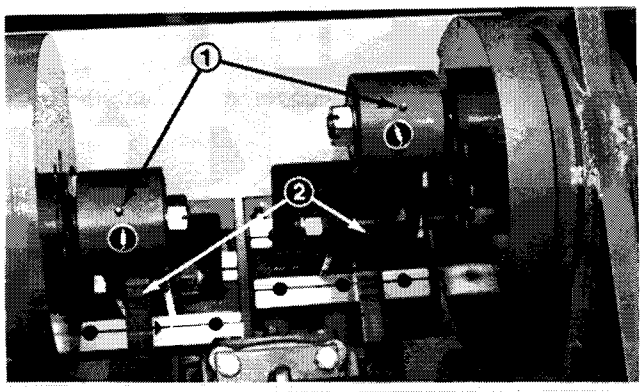


Figure 29
1. Stomper Assy
2. Connecting Rods (12)

GREASE THE FOLLOWING FITTINGS EVERY 25 HOURS, OR SEASONALLY:

Component	No. Ftg.	Fig. No.
Driveshaft assembly	4	28
Connecting rods	12	29
Lift arms	6	30
Compression spring shafts	6	30
Rear wheels	2	31
Lift cylinder	2	32
Steering axle king pin	1	32

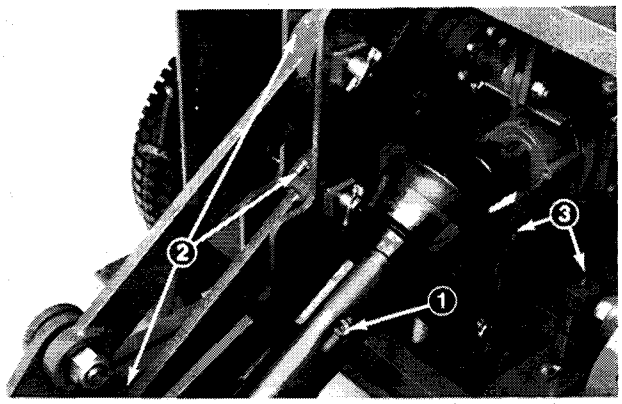


Figure 30
1. Drive Shaft (1)
2. Lift Arms (6)
3. Compression Spring Shafts (6)

LUBRICATION

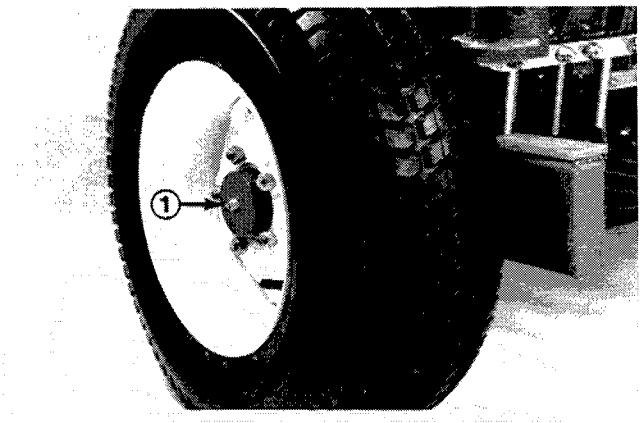


Figure 31
1. Rear Wheels (2)

GREASE FRONT WHEEL BEARINGS

Grease the front wheel bearings annually.

1. Block the rear wheels to prevent the machine from moving.

2. Support the front frame on blocks and remove the front wheel and hub assembly (Fig. 32).

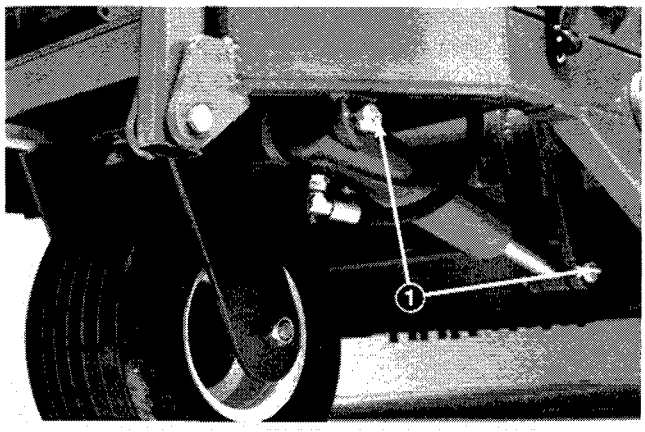


Figure 32
1. Lift Cylinder (2)
2. Steering Axle King Pin

3. Repack the bearings with wheel bearing grease and re-install.

CHECK RESERVOIR LEVEL

Every 25 hours operation, or seasonally, whichever comes first, check oil level in the reservoir.

1. With the machine on a level surface, remove the oil fill plug and dipstick assembly from reservoir (Fig. 33).

2. The oil level should be between the two marks on the dipstick. If oil level is not between the dipstick marks, add SAE EP 90W gear oil until oil level is correct.

NOTE: Under normal conditions the reservoir oil level should not drop. If oil level is low, check for signs of leakage and correct, as necessary. Should major failure of gearbox components occur, drain the gear oil, flush the reservoir and install fresh oil. The reservoir oil drain plug is located at the lower left side of the reservoir (Fig. 34). To refill reservoir to operating level, add approximately 9.5 qt (9 l).

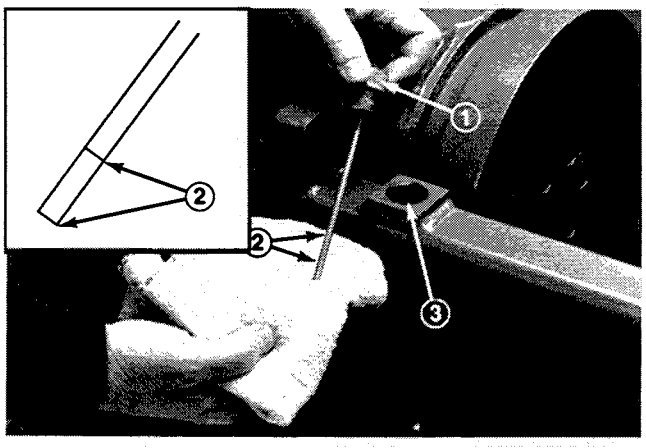


Figure 33
1. Fill Plug and Dipstick
2. Oil Level Between Marks
3. Reservoir Fill hole

Note: Drain plugs are also at the bottom of each (3) gear case.

Figure 34
1. Reservoir Drain Plug

CHECK RIGHT ANGLE GEAR CASE OIL LEVEL

Every 25 hours operation, or seasonally, whichever comes first, check oil level in the right angle gear case (Fig. 35).

1. With the machine on a level surface, remove the oil fill/dipstick plug.

2. Add SAE EP 90W gear oil, if needed, and install the fill plug.

Note: Gear case capacity is approximately 25.5 oz (750 ml).

LUBRICATION

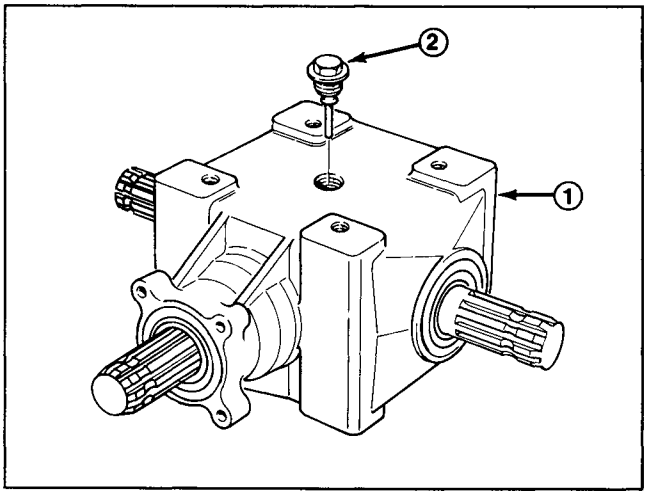


Figure 35

1. Right Angle Gear Case
2. Gear Case Fill Plug

CHECK PICK–OFF GEAR CASE OIL LEVEL

Every 25 hours operation, or seasonally, whichever comes first, check oil level in the pick–off gear case.

1. With the machine on a level surface, remove the gear case cover (Fig. 36).

Note: Breather (Fig. 36) installed this side only.

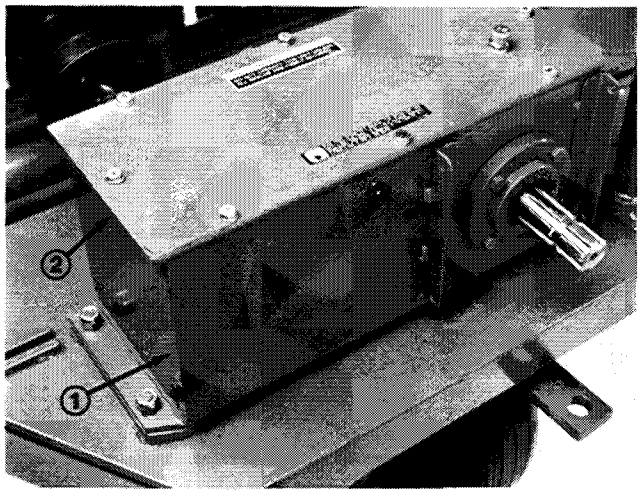


Figure 36

1. Pick–off Gear Case
2. Gear Case Cover
3. Breather

2. The oil level should be to the center of the gear shafts (Fig. 37). If the level is low, add SAE EP 90W gear oil and install the cover.

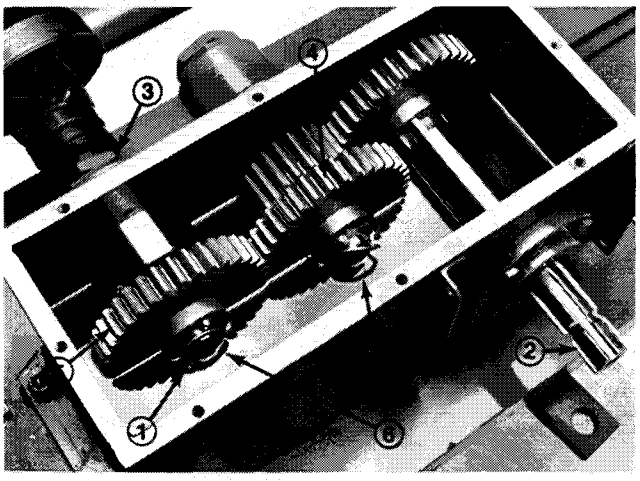


Figure 37

1. Oil Level to Center of Shafts
2. Input Shaft
3. Output Shaft
4. Driver Gear
5. Driven Gear
6. Klik Pins

Note: Should major failure of pick–off gear case components occur, the gear oil will be contaminated and should be drained. Flush the gear case and add fresh oil. The gear case oil drain plug is at the lower left rear side of the case (Fig. 38). Gear case capacity is approximately 5.8 qt (5.5 l).

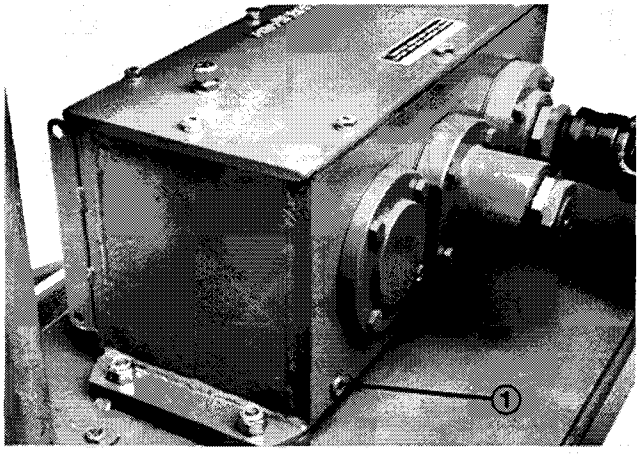


Figure 38

1. Gear Case Drain Plug

MAINTENANCE

CHECKING STOMPER ASSEMBLIES

Within the first five hours of initial machine operation and after every 25 hours of operation thereafter, all stomper assemblies must be checked for excessive lateral play. This must be done or major machine component failure may result.

1. Grasp each stomper assembly at the bottom and try to move the assembly laterally in each direction (Fig. 39). Do not move fore and aft. There should be little or no movement of the assembly. If there is movement, proceed to step 2. If there is little or no movement, proceed to check the next assembly.

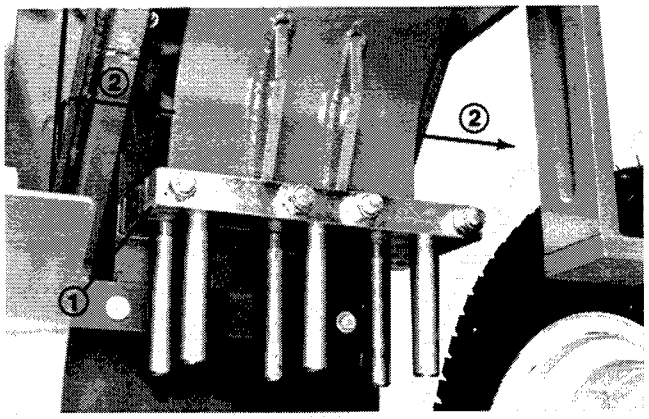


Figure 39
1. Stomper Assembly
2. Move Laterally–both Directions

2. Remove the roll pin securing the castle nut to the top crankshaft (Fig. 37). Check the castle nut for tightness with fingers. If the nut is very loose, rotate it clockwise until it is flush against the outer spacer and resistance is felt. (Fig. 40).

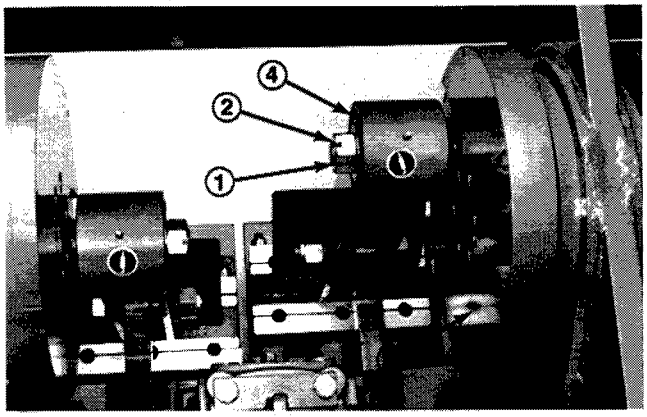


Figure 40
1. Roll Pin
2. Castle Nut
3. Top Crank
4. Outer Spacer

3. Using a torque wrench, rotate the nut clockwise (tighten) until a slot in the nut aligns with the shaft hole. Do not exceed 40 ft-lb (54 N·m). Re–install the roll pin (Fig. 40).

Note: The shaft is cross drilled, therefore only 1/12 turn (max) should be required to align roll pin hole.

GENERAL MAINTENANCE

After each use of the machine and when clean–up is completed, perform the following:

1. Examine tines for damage and sharpness and repair or replace, as necessary.
2. Inspect closely for signs of oil leakage, excessive component wear or component damage. Repair or replace, as necessary.
3. Thoroughly wash the machine with a garden hose without a nozzle so contamination and seal and bearing damage due to excessive water pressure will be avoided. A brush may be used to remove caked-on material. Use mild detergent to clean the covers. Applying a coat of auto wax periodically will retain the cover's glossy finish. After cleaning, inspect for machine damage, gear oil leakage, component and tine wear.

TIMING OF INDIVIDUAL GEAR CASES

The purpose of timing each individual Gear Case Is to ensure that the tine will enter and leave the soil at the proper angle and sequence.

There are three gear cases on the Fairway Aerator. The upper and lower crankshaft flywheels for each Tine Arm must be assembled so the Offset Shafts are located in the same "clock" position. That is, if the Upper Offset Shaft is positioned at 12 o'clock, then the Lower Offset Shaft must be at the 12 o'clock position (Fig. 41)). The upper and lower shafts for the opposite side of the shared Gear Case will be 180 degrees apart. If the Shaft position on one side of the Gear Box is at 12 o'clock, then the Shaft position will be at 6 o'clock for the opposite side.

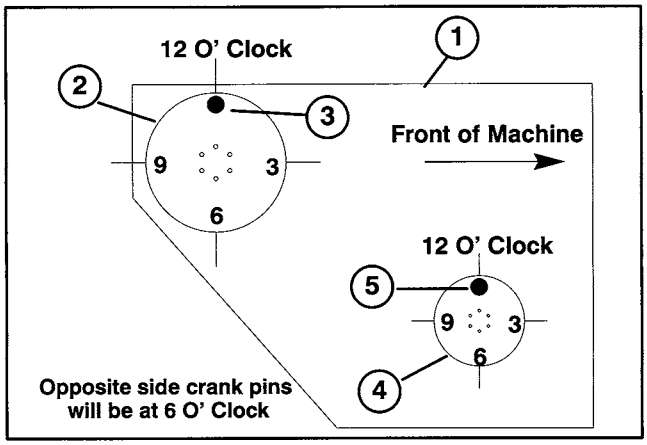


Figure 41
1. Gear Case
2. Upper Crankshaft Flywheel
3. Upper Offset Shaft
4. Lower Crankshaft Flywheel
5. Lower Offset Shaft

To achieve the proper "clock" position for each gear case, install Timing Bar (82–3200) to the upper and lower crankshaft by aligning each Roll Pin and securing with Socket Head Capscrews (Fig. 42). Timing one side of the gear case will automatically align the opposite side of the gear case because the two sides are connected by a common shaft.

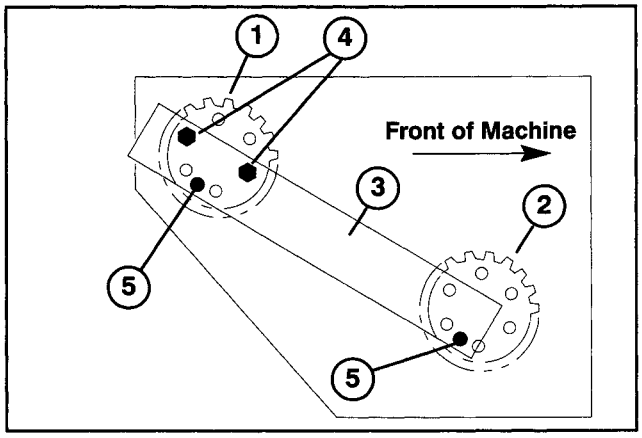


Figure 42

1. **Upper Crankshaft**
2. **Lower Crankshaft**
3. **Timing Bar**
4. **Socket Head capscrews**
5. **Roll Pin**

NOTE: Be sure to install Timing Bar as shown in figure 42. If the Timing Bar is installed upside down, the crankshafts will be misaligned.

While holding the upper and lower crankshafts in alignment with the timing bar, install the Drive Gear into the Gear Case (Fig. 43).

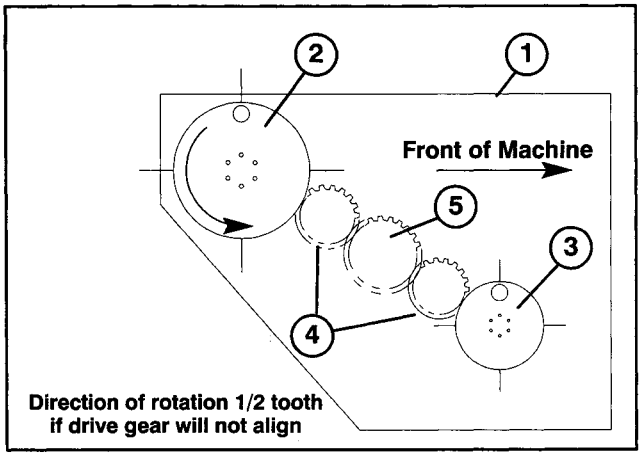


Figure 43

1. **Gear Case**
2. **Upper Crankcase Flywheel**
3. **Lower Crankcase Flywheel**
4. **Idler Gears**
5. **Drive gear**

NOTE: If the external teeth of Drive Gear will not align with Idler Gears, remove Timing Bar (82–3200) and Drive Gear, then rotate upper crankshaft 1/2 gear tooth toward rear of aerator to align teeth. Reinstall Drive Gear (Fig. 43). Be careful not to move upper crankshaft position any more than 1/2 tooth to achieve proper alignment.

When the bearings have been installed on the Drive Gear, it no longer can be removed without first removing the Idler Gears. If both bearings are installed on the Drive Gear and a timing adjustment is necessary, remove Upper Crankshaft Assembly from one side of Gear Case, move gear one tooth in direction shown in figure 43, and reinstall in same location. Moving the Upper Crankshaft Assembly is easier/faster than removing the Drive Gear and also provides a more finite timing adjustment than the Drive Gear.

IMPORTANT: Do Not achieve alignment by rotating upper crankshaft towards the front of the Aerator. For optimum hole quality, alignment must be accomplished by rotating the upper crank toward the rear of the machine as indicated by the arrow in figure 43.

SYNCHRONIZING GEAR CASES

The purpose for timing the three Gear Cases, is to ensure the Aerator operates with the lowest amount of vibration, and to minimize the amount of reaction force the unit must absorb when the tines engage the soil.

IMPORTANT: The tine arms are numbered I to 6 from left to right, as viewed from rear of unit.

The next step is to perform a final orientation of the Gear Cases. This step must be performed to align the Drive Line Assembly with Gear Case Drive Gears.
Each of the three Gear Cases must be connected to the other in a "Proper–Phase" condition so that only one set of tines will enter the turf at a time. Rotate the "Number one" tine block to its lowest position as a starting point. When viewed from the left side of the Coring Head, the stamped numbers "2", "3", and "1" should be visible at the top of the first, third, and fifth upper crank respectively (Fig. 44). While maintaining the relationship between the three Gear Cases, install the Drive Line Spline Shafts to the couplings. If you are unable to achieve spline alignment, re–index the spline using the bolt hole pattern in the coupling flanges as required.

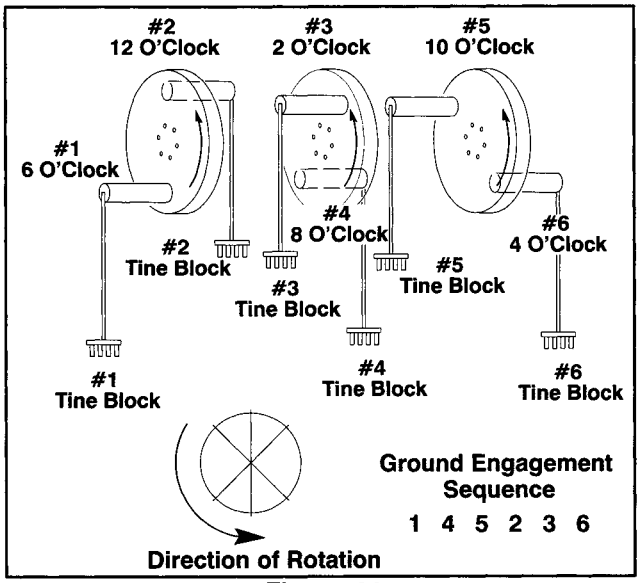
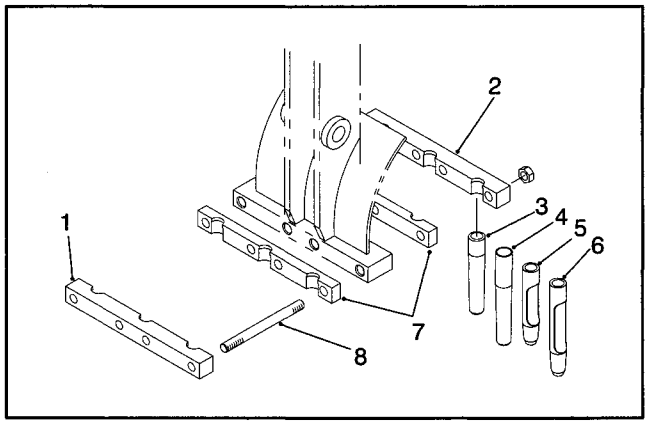


Figure 44

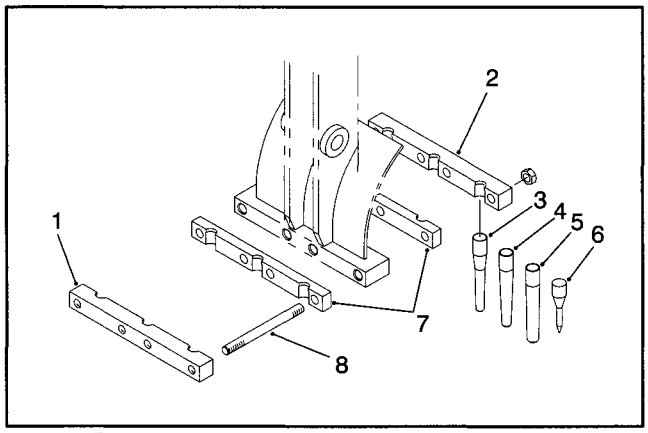
TINE SELECTION

6 TINE BLOCKS & .75 DIA. TINES



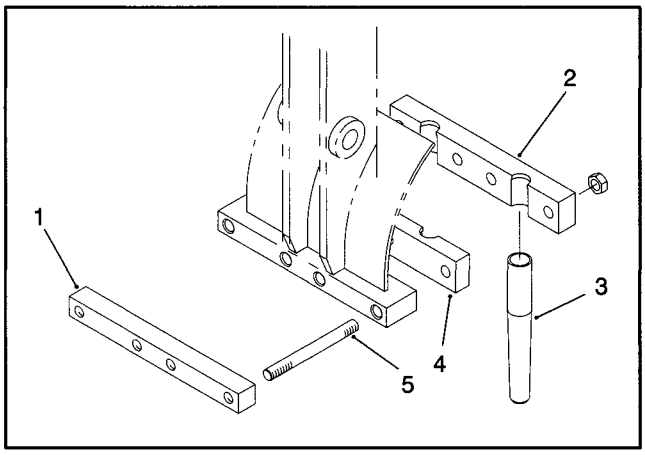
Ref. No.	Part No.	Description	No. Used
1	70–9390	6–Tine block – Bridging	6
2	70–9380	6–Tine Block – Outer	6
3	62–4600	Tubular Tine .75 x 4.75	36
4	86–9720	Tubular Tine .75 x 5.75	36
5	92–7941	Open Center Tine .75 x 4.75	36
6	92–7900	Open Center Tine .75 x 5.75	36
7	70–9400	6–Tine Block – Inner	12
8	71–7120	.50 x 150mm Stud	24

6 TINE BLOCKS & TINES



Ref. No.	Part No.	Description	No. Used
1	95–3104	6–Tine block – Bridging	6
2	95–3103	6–Tine Block – Outer	6
3	59–3690	Tubular Tine .38 x 4.75	36
4	94–3419	Tubular Tine .50 x 5.75	36
5	59–3670	Tubular Tine .62 x 4.75	36
6	77–5320	Spiker Tine .31 x 3.25	36
7	95–3105	6–Tine Block – Inner	12
8	71–7120	.50 x 150mm Stud	24

2 TINE BLOCKS & TINES



Ref. No.	Part No.	Description	No. Used
1	70–9410	2–Tine block – Bridging	6
2	70–9260	2–Tine Block – Outer,	6
3	71–0940	Tubular Tine .88 x 7.00	12
7	70–9270	2–Tine Block – Inner	6
8	71–7110	.50 x 150mm Stud	24

The Toro Commercial Products Two Year Limited Warranty

The Toro Company warrants your 1996 or newer Toro Hydroject® 3000, Hydroject® 4000, Greens, or Fairway Aerator ("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.

Warranty Duration: Two years or 500 operational hours*, whichever occurs first.

****Contract usage and shared ownership limited to 120 days. *Product equipped with hour meter.**

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 result from failure to perform required maintenance and/or adjustments are not covered.
- Product failures which result 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 Resources 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.