



Reelmaster Transport Frame

5 Unit

Model No. 33455—Serial No. 240000001 and Up

Operator's Manual

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Introduction

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

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

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

Model No. _____ Serial No. _____

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

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

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

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

This manual uses two other words to highlight information.

Important calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

Safety

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

Before Operating

- Read and understand the contents of this Operator's Manual before operating the machine. Become familiar with all of the controls and know how to stop quickly. A free replacement manual is available by sending the complete Model and Serial Number to The Toro Company, 8111 Lyndale Avenue South, Bloomington, Minnesota 55420-1196.
- Never allow children to operate the machine. Do not allow adults to operate machine without proper instruction. Only trained operators who have read this manual should operate this machine.
- Never operate the machine when under the influence of drugs or alcohol.
- Keep all bystanders away from the operating area.
- Keep all shields and safety devices in place. If a shield, safety device, or decal is illegible or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts, and screws to ensure that the machine is in safe operating condition.
- Do not operate the machine while wearing sandals, tennis shoes, sneakers, or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes, and a helmet is advisable and required by some local ordinances and insurance regulations.
- This mower requires a tow vehicle capable of towing an implement of this size and weight. Read tow vehicle operator's manual or contact vehicle service agency if you have any questions regarding load and braking capacity. Check to make sure all safety shields or other related equipment on tow vehicle, is properly installed and operational. If this vehicle is transported on public roads, comply with all regulations.
- Sit on the seat when starting the engine and operating the machine.
- When leaving machine unattended, put the cutting units either fully up in transport with safety lockup attached, or fully down in mowing position.
- Using the machine demands attention. To prevent loss of control:
 - Operate only in daylight or when there is good artificial light.
 - Drive slowly and watch for holes or other hidden hazards.
 - Do not drive close to a sand trap, ditch, creek, or other hazard.
 - Reduce your speed when making sharp turns and when turning on hillsides.
 - Attach the safety lockup devices to the mowers before transporting the machine for long distances or on public roads.
 - Do not exceed 20 MPH during transport operation. Operate more slowly while traveling over rough terrain or in adverse weather conditions.
 - Do not exceed 6 MPH during mowing operation.
 - Avoid sudden starts and stops.
 - Before backing up, look to the rear and ensure that no one is behind the machine.
 - Watch out for traffic when near or crossing roads. Always yield the right-of-way.
- If the engine stalls or the machine loses headway and cannot make it to the top of a slope, do not turn the machine around. Always back slowly straight down the slope.
- **Do not take an injury risk!** When a person or pet appears unexpectedly in or near the operating area, **stop operation.** Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume operation until the area is cleared.
- Do not touch the engine or muffler while the engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.
- If frame is to be removed from tow vehicle, make sure it is parked on a level surface, wheels blocked on both sides of tires and cutting units are fully up or down.

While Operating

- Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.
- The maximum seating capacity is one person. Never carry passengers.

Maintenance


- Remove the key from the ignition switch to prevent accidental starting of the engine when servicing, adjusting, or storing the machine.

- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Toro Distributor.
- To reduce a potential fire hazard, keep the engine free of excessive grease, grass, leaves, and accumulations of dirt. Never wash a warm engine or any electrical parts with water.
- Be sure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight. Check the rotor bearing mounting bolts and nuts frequently to be sure that they are tightened to specification.
- Make sure that all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin hole leaks 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.
- Before disconnecting or performing any work on the hydraulic system, all pressure in the system must be relieved by stopping the engine and lowering the blower to the ground.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and other parts of the body away from the fan and other moving parts.
- The engine must be shut off before checking the oil or adding oil to the crankcase.
- At the time of manufacture, the blower conformed to safety standards in effect for riding mowers; therefore, to ensure optimum performance and safety, always purchase genuine Toro replacement parts and accessories to keep the machine all Toro. **Never use “will-fit” replacement parts and accessories made by other manufacturers.** Look for the Toro logo to ensure genuineness. Using unapproved replacement parts and accessories could void the warranty.

Safety and Instruction Decals



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

**CAUTION**

MAXIMUM RECOMMENDED SPEED IS 20 M.P.H.


1. THE TRANSPORT FRAME CONTROL VALVE IS DESIGNED FOR USE WITH OPEN CENTER HYDRAULIC SYSTEMS. SPECIAL PRECAUTIONS MUST BE TAKEN IF CLOSED CENTER HYDRAULIC TOW TRACTORS ARE USED. SEE OPERATOR'S MANUAL FOR DETAILS.
2. TOW TRACTOR MUST BE 30 PTO HP MINIMUM AND WEIGH 3000 LBS. OR MORE.
3. TOW TRACTOR HYDRAULIC SYSTEM RELIEF PRESSURE MUST BE GREATER THAN 1500 PSI.
4. ASSURE THAT OIL USED IN TRANSPORT FRAME HYDRAULIC SYSTEM IS COMPATIBLE WITH TOW TRACTOR HYDRAULICS.
5. REDUCE TOW TRACTOR ENGINE SPEED IF CONTROL VALVE DETENTS RELEASE BEFORE COMPLETING CYCLE.

REFER TO OPERATOR'S MANUAL FOR ADDITIONAL INSTRUCTIONS ON PROPER OPERATION.

47-3900

READ AND UNDERSTAND OPERATORS MANUAL BEFORE OPERATING THIS MACHINE.
REPLACEMENT MANUAL AVAILABLE BY SENDING MODEL AND SERIAL NUMBER
TO: THE TORO CO., 8111 LYNDAL AVE., MINNEAPOLIS, MN., 55420

47-3770

**CAUTION**

INCORRECT CONNECTION OF HYDRAULIC SYSTEM MAY CAUSE DAMAGE TO TRACTORS WITH CLOSED CENTER HYDRAULIC SYSTEMS.


SEE OPERATOR'S MANUAL FOR INSTRUCTIONS.

65-2710

RAISE

7

LOWER



RAISE

5

LOWER

RAISE

1
2
3

LOWER

RAISE



4


LOWER

RAISE

6

LOWER


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**WARNING**

READ AND UNDERSTAND OPERATOR'S
MANUAL BEFORE OPERATING THIS MACHINE.
MAXIMUM RECOMMENDED TRANSPORT SPEED
IS 20 MPH UNDER IDEAL CONDITIONS.

47-5600

Specifications

Note: Specifications and design subject to change without notice.

General Specifications

Cutting Capacity	6.7 acres per hour @ 5.5 MPH. (Assumes no reduction in total area mowed due to overlap, turning, stops, etc.)
Main Frame Construction	Tubular and structural steel, bolted and electrically welded construction.
Trailer Tongue	Tubular and structural steel welded construction. Trailer clevis is adjustable to 3 positions. Trailer tongue can be removed from frame for storage and shipping purposes.
Control Tower	Adjustable 12–1/2" fore and aft and 7" up and down. Controls are operable from tractor seat. Control tower is mounted on trailer tongue.
Wing Lift Arms	Tubular steel, reinforced welded construction.
Axle Assembly	Implement type. Max. load capacity = 4940 lbs.* Axle capacity= 6000 lbs. Hub capacity = 3560 lbs. each Wheel capacity = 3000 lbs. each Tire capacity = 2470 lbs. each @ 28 psi.*Max. load capacity determined by tire capacity at maximum inflation pressure of 28 psi.
Trailer Transport Wheels	Two 6 bolt, 6" bolt circle, 4.62" pilot, 15 x 8LB implement style wheels with 11 L–15 (low profile), 6 ply rating implement rib tires; 24–28 psi recommended tire pressure.
Lifting Mechanism	Hydraulic lift—1st, 2nd and 3rd cutting units operate together. Cutting units 4 and 5 operate individually. Units can be raised or lowered in any sequence on level ground.
Hydraulic Valve	Heavy duty, directional control valve, parallel circuit, open center, stack design. Cast iron valve bodies, with hardened spools and plated for corrosion protection. Primary relief valve (1500 + 150 psi), shim adjustable. Relief valve prevents excess pressure build-up in the hydraulic system and safeguards the hydraulic pump and hoses. Closed center conversion kit available for use with tow tractors containing closed center hydraulic systems.
Hydraulic Cylinders	Tie rod construction. 3" bore, double-acting cylinders; chrome-plated rods 1–1/8" diameter (1–3/8" diameter on No. 1 cylinder), precision finished bore in cylinder tubes.
Hydraulic Hoses	SAE 100R7, one-wire braid, 1/2" I.D. feed line hoses from tractor to valve body. SAE 100R7, 5/16" I.D. cylinder hoses from valve body to hydraulic cylinders
Hydraulic System Couplers	Quick disconnect couplers for easy hook-up to tractor.
Hydraulic System Capacity	Two gallons Mobilfluid 424 multifunctional transmission/hydraulic fluid with cylinders retracted.
Jack	Side-screw type trailer jack. 10" stroke. Stores inside trailer tongue when not in use. Load capacity 2200 lbs.
Safety/Transport Lockup Devices	Safety strap provided to prevent accidental lowering of No. 4 & 5 cutting units during transport. A safety lock-up pin prevents accidental lowering or settling of No. 1, 2, 3 cutting units during transport or storage. All lockup devices store on the transport frame.

Measurements

Length	150"
Transport Width	7' 11" w/Reelmaster mowers
Mowing Width	14' 4" w/Reelmaster mowers
Height	58" (w/Control Tower Collapsed)
Tread Width	68"
Transport Ground Clearance	7-1/2"
Weight	2760 lbs.
Shipping Weight (Approx.)	1600 lbs.

Optional Equipment

18" Wheel Conversion Kit	Part No. 51-3060
Ball Coupler Kit	Part No. 53-9760
5-7 Conversion Kit	Model No. 33452

Setup

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

Description	Qty.	Use
Lower Tower	1	Install Control Tower
Upper Tower	1	
Capscrew 3/8-16 x 2-3/4" Lg.	2	
U-Bolt	2	
Flange Nut 3/8-16. 1Transport Lock-Up52	6	
Control Levers w/Knobs	3	Control Levers
Hex Nut	3	
Clevis Pin 5/16 x 1-1/4" Lg.	3	
Cotter Pin 5/32 x 3/4" Lg	6	
Lift Chains	2	Install Lift Chains & Lift Bracket.
Bail Lift Chains	4	
Long Shackle	1	
Short Shackle	2	
Clevis Pin 3/8 x 1-1/2" Lg.	5	
Cotter Pin 1/8 x 3/4" Lg.	5	
Lift Bracket	1	
Hitch Pin	2	Connect Transport Frame to Tractor &
Hairpin Cotter	2	
Drawbar	5	Mount Drawbars to Lift Bails
Capscrew 1/2-13 x 4" Lg.	5	
Locknut	5	
Quick Coupler Body	2	Connect Supply/Return Hoses to Tractor.
Quick Coupler Body Caps	2	

Description	Qty.	Use
Capscrew 1/2–13 x 3–1/2" Lg.	10	Mount Cutting Units to Drawbars and Lift Bail.
Spacer	10	
Locknut 1/2–13	10	
Long Shackles	4	
Clevis Pin 3/8 x 1–1/2" Lg.	4	
Cotter Pin 1/8 x 3/4" Lg.	4	
Capscrew 3/8–16 x 1–1/2" Lg.	1	
Locknut 3/8–16	1	
Spring	5	
S–Hook	5	
Operator's Manual	1	Read before operating the machine.
Parts Catalog	1	
Registration card	1	Fill out and return to Toro.

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

Tractor Preparation

To assure proper operation of the transport frame, the following tow tractor requirements must be met:

1. Tow tractor must be 30 PTO HP minimum and weigh 3000 lb. or more.
2. The tractor must have a hydraulic system capable of remote hydraulic operation and a hydraulic directional control valve, manual or spring centered. The transport frame control valve is designed for use with open center hydraulic systems. The tractor hydraulic system relief pressure must be greater than 1500 PSI.
3. Check tractor operators manual or check with tractor dealer to determine which system, open center or closed center, your tractor has. Special operating precautions must be taken if closed center hydraulic system is used. See Operating Instructions, page 13, or a Closed Center Conversion Kit, Toro Part No. 48–1900, is available from your local Authorized Toro Distributor.

Note: Consult your tractor dealer for proper installation of remote hydraulics because damage may occur to system if improperly installed.

4. Assure tractor hydraulic system will couple to remote hydraulic supply/return lines of transport frame control valve. Quick disconnect couplers are included with the transport frame, but different sized hydraulic quick coupler tips may be substituted to match existing tractor couplers.
5. The hydraulic system of the transport frame has been filled with Mobilfluid 424 which is a multifunctional transmission/hydraulic lubricant. This transmission

fluid is designed to satisfy the transmission lubricant, hydraulic, and hydrostatic requirements of most farm and industrial tractors.

Before operating the transport frame, make sure the hydraulic fluid is suitable for use with the tow tractor hydraulic system.

The following is a list of fluids compatible with the transport frame hydraulic system fluid:

- Allis Chalmers HPF821 or 322
- Allison C–2 Fluid
- J.I. Case TCH, TFD or Spec 144,145 Fluids
- John Deere Type 303 Special Purpose Oil (J–14B) or Hy gard (J–20A)
- Ford Tractor M2C41A, M2C53A, M2C86A
- International Harvester Co. Hy–Tran Fluid
- Massey–Ferguson M 1127, M 11 29A, M 1135
- Permatran Transmission Fluids
- Minneapolis–Moline Hydraulic Fluid and Part No. 35301 Fluid
- Oliver Corp. 102082A E.P. Additive in engine oil.

In all cases, the equipment manufacturer's recommendations regarding drain intervals should be followed.

6. Adjust tractor seat to a comfortable operating position .

- Adjust tractor drawbar (hitch) so mounting hole is less than 50 inches from outside of rear tractor tire (Fig. 1). This will prevent interference with front cutting unit lift arms.

Note: If tractor drawbar cannot be adjusted as described above, use caution when turning, to avoid contact.

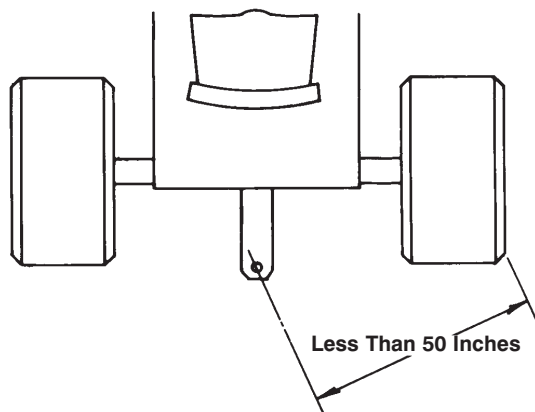


Figure 1

Install Jack

- Remove jack from storage position by removing pin and sliding jack off storage tube (Fig. 2).

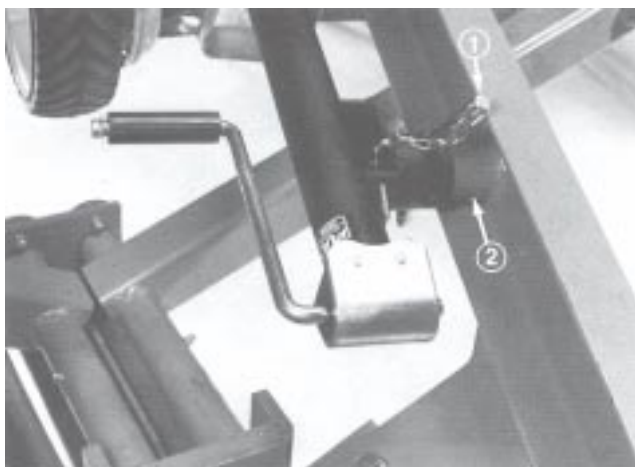


Figure 2

- Pin
- Storage tube

- Raise front of frame and slide jack onto mounting tube aligning mounting holes in jack with holes in mounting tube. Secure with pin. (Fig. 3).



Figure 3

- Jack frame to desired height, by rotating jack handle clockwise to raise and counterclockwise to lower.

Adjust Hitch

- Measure height from ground to top of hitch on tow tractor.
- Adjust transport frame hitch up or down according to measurement of tractor hitch. Use appropriate mounting holes as shown in chart below and in Fig. 4.

Tractor Hitch Height	Frame Mounting Holes
Below 11"	Bottom (2) sets of holes
11" to 15"	Middle (2) sets of holes
Above 15"	Top (2) sets of holes

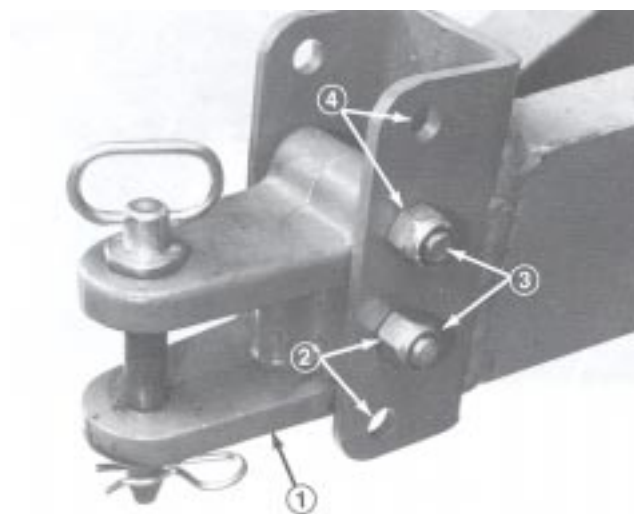


Figure 4

- Hitch
- Bottom mounting holes
- Middle mounting holes
- Top mounting holes

3. Secure frame hitch to tractor hitch with hitch pin and hairpin cotter.
4. Reinstall jack to storage tube on inside of frame channel and secure with pin.

Install Control Tower

1. Loosely secure lower control tower to center frame tube with (2) U-bolts and (4) 3/8-16 flange nuts (Fig. 5).

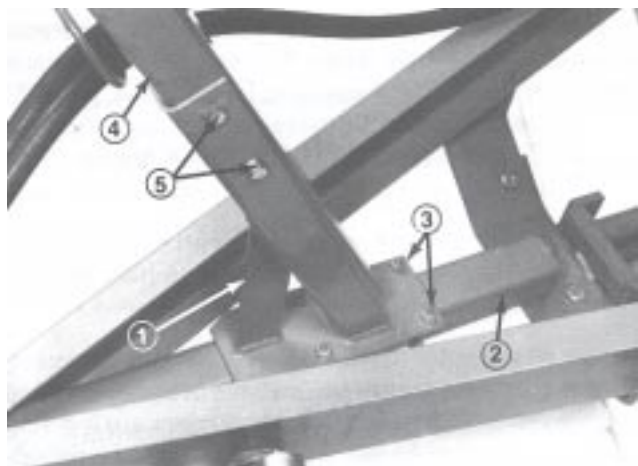


Figure 5

- | | |
|--------------------------|----------------------------|
| 1. Lower control tower | 4. Upper control tower |
| 2. Center frame tube | 5. Capscrews & flange nuts |
| 3. U-bolts & flange nuts | |

2. Mount upper control tower to lower control tower with (2) 3/8-16 x 2-3/4 capscrews and (2) 3/8-16 flange nuts (Fig. 5).

Note: Adjust height of control tower for operator comfort by using appropriate mounting holes in upper control tower tube. Keep height of tower as low as possible.

3. Adjust control tower fore and aft by sliding tower on center frame tube and tightening flange nuts and U-bolts.

Note: Position tower as far back as possible, but within comfortable reach of operator. Tower will pitch forward when crossing a ditch or low area in turf.

4. Route supply and return hoses through hose hanger (Fig. 6).

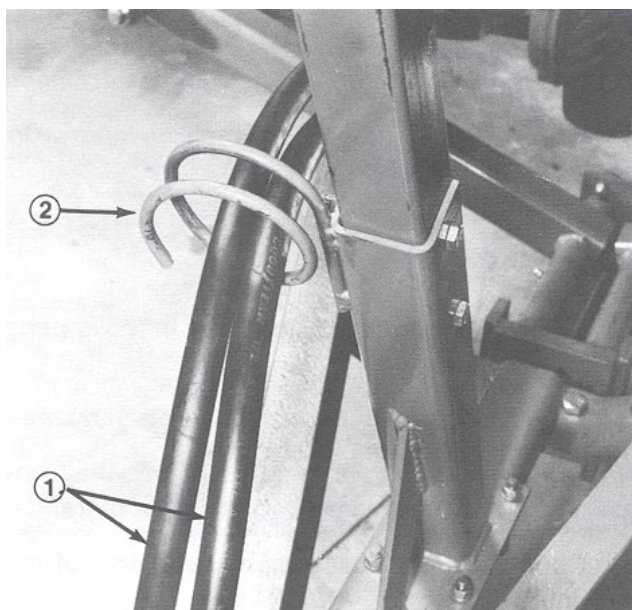


Figure 6

- | | |
|----------------------------|----------------|
| 1. Supply and return hoses | 2. Hose hanger |
|----------------------------|----------------|

Mount Control Linkage And Levers

Note: To ease in assembly of linkage, control panel cover may be removed from control tower, by removing (4) capscrews (Fig. 8).

1. Secure upper control linkage tubes to pivot blocks with clevis pins and cotter pins (Fig. 7). Coat pins with #2 gun grease.

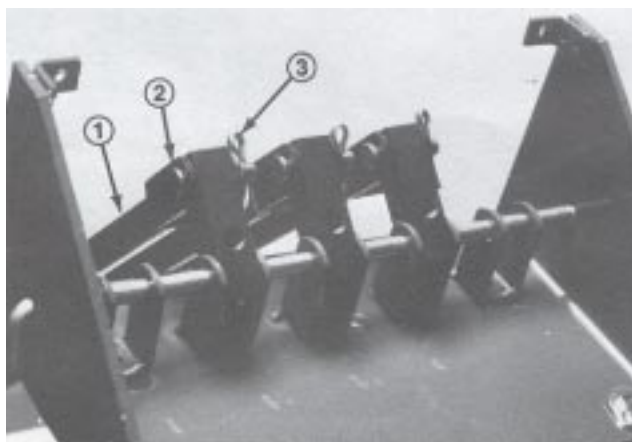


Figure 7

- | | |
|--------------------------------|----------------|
| 1. Upper control linkage tubes | 2. Clevis pins |
| | 3. Cotter pins |

2. Reinstall control panel cover (if previously removed), to control tower with (4) capscrews (Fig. 8).



Figure 8

1. Control panel cover
2. Control levers
3. Mounting capscrews

3. Screw control levers into pivot blocks (Fig. 8).
4. Check to make sure valve spool levers (Fig. 9) are in neutral (middle position) by pivoting levers in toward valve, or pulling them out to find mid position. Coat all pivot points with #2 gun grease or lubricate with #30 SAE oil.

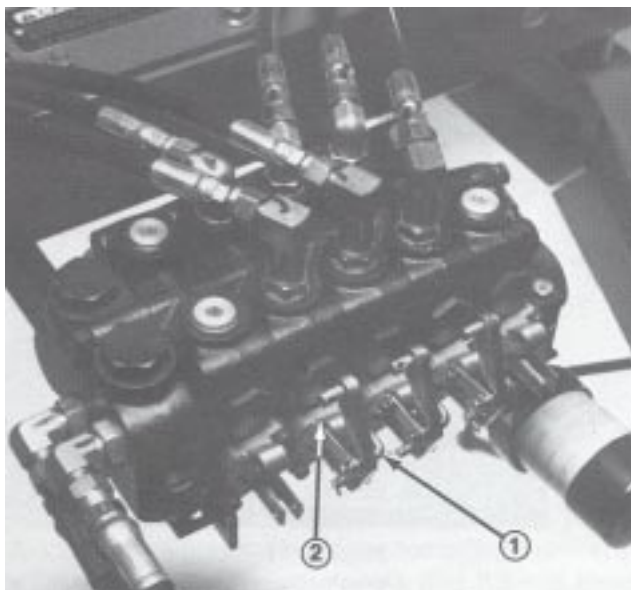


Figure 9

1. Spool valve levers
2. Mounting pin

5. Thread 7/16-14 hex nuts onto lower control rods. Partially thread lower control rods into upper control tubes (Fig. 10). Coat threads with #2 gun grease.

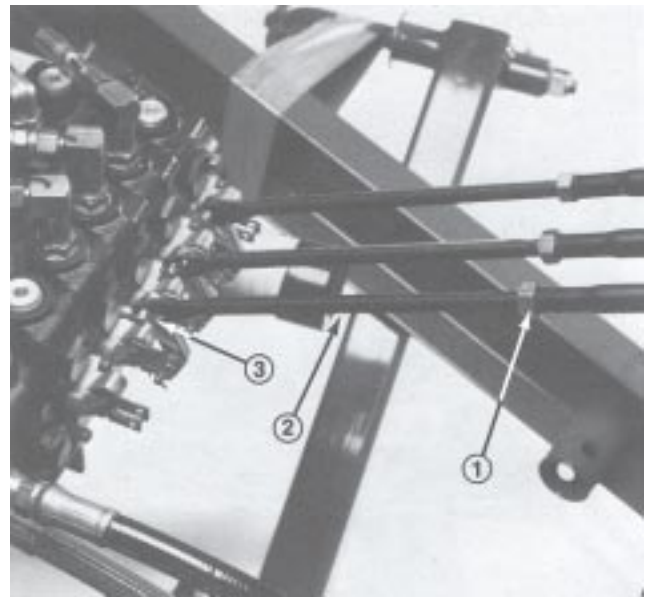


Figure 10

1. Hex nut
2. Lower control rod
3. Cotter pins

6. Align hole on end of lower control rod (Fig. 10) with mounting pin in control valve lever (Fig. 9). Lever on control tower should be in center of slot (neutral position) if adjusted correctly (Fig. 11). Thread lower rod into or out of upper control tube to adjust. After each lever is adjusted, check to make sure all levers are aligned with each other. Readjust if necessary.

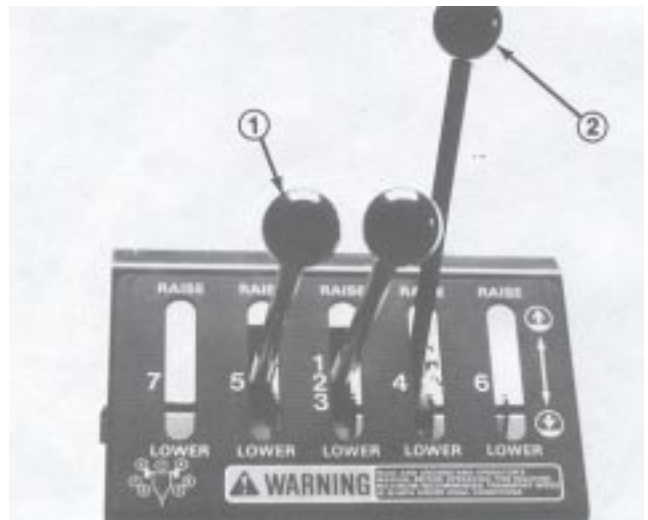


Figure 11

1. Lever in neutral position
2. Lever in raise position

7. Secure control rods to control valve levers with cotter pins (Fig. 10).
8. Check control lever operation by moving levers to raise and lower positions. Hold lever(s) in respective position until cycle is completed. All levers should operate freely with no binding and should be well lubricated. Readjust control tube linkages if necessary.
9. When adjusted correctly, tighten jam nuts on lower control rods (Fig. 10).

Connect Supply/Return Hoses To Tractor

1. Screw quick couplers (included in loose parts) to tractor couplers.
2. Remove dust caps from supply/return hoses.

Note: Store dust caps on hose hanger so they may be used whenever hoses are uncoupled from tractor.

3. Couple supply hose to pressure port of tractor system.
4. It is recommended that a male and female section of the coupling be attached to both tractor and frame. This will prevent reversing the hoses.
5. Couple return hose to return port or tank on tractor system.

Note: Consult your tractor operators manual for proper installation of hoses because damage may occur if hoses are improperly installed.

Install Lift Chains

1. Connect (2) outer lift chains to pulley support with short shackles, clevis pins and cotter pins (Fig. 13)

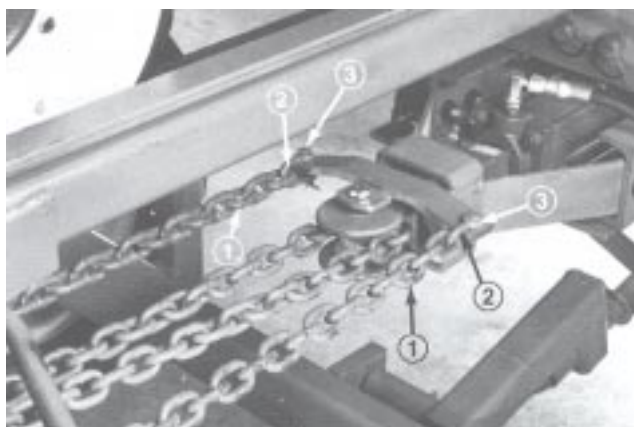


Figure 12

1. Outer lift chains
2. Short shackles
3. Clevis pins & cotter pins

2. Route chains forward, around middle sheaves and outward over side sheaves.
3. Secure short lift chains to No. 4 and No. 5 lift arms (rear) with short shackles, clevis pins and cotter pins (Fig. 13). Secure to welded ring.

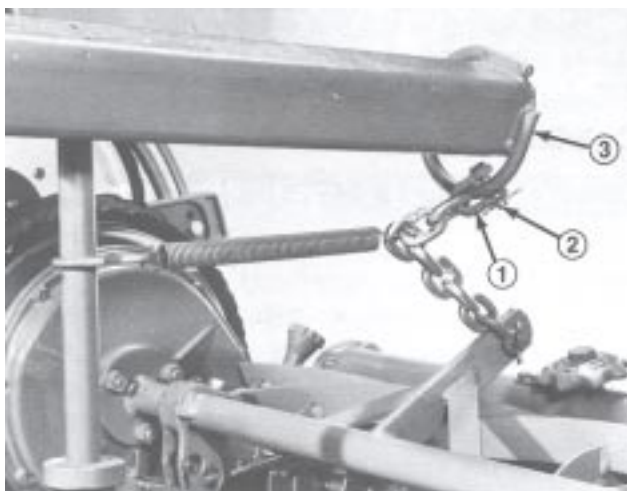


Figure 13

1. Short shackle
2. Clevis pin & cotter pin
3. Welded ring

Install Drawbar

1. Align mounting holes in drawbar with mounting hole in lift bail housing. Offset hole in drawbar should be positioned up (Fig. 14).

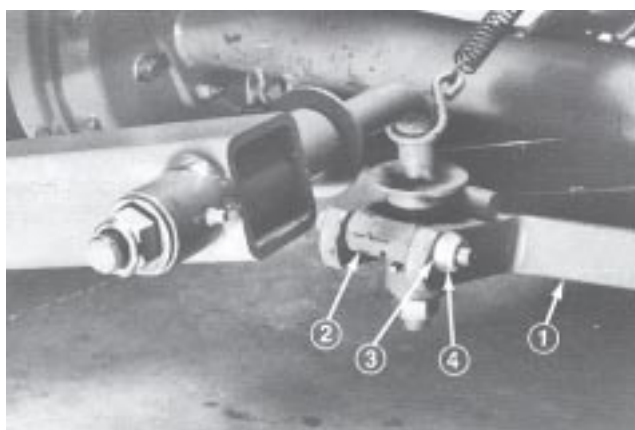


Figure 14

1. Drawbar
2. Lift bail housing
3. Offset hole in drawbar—UP
4. Capscrew and locknut

2. Secure drawbars to lift bails with 1/2–13 x 4" lg. capscrew and 1/2–13 locknut.

Install Reelmaster Mowers

1. Align holes in drawbar with brackets on mower cross-tubes. Secure each side with 1/2-13 x 3-1/2" lg. capscrew, spacer tube and 1/2-13 locknut (Fig. 15).

Note: The head of the capscrew should be positioned inboard.



Figure 15

- | | |
|------------------------------------|---------------------|
| 1. Capscrew, spacer tube & locknut | 2. Mounting bracket |
|------------------------------------|---------------------|

Note: If Spartan mowers are to be attached, drawbar clamps, Part No. 5-1090 and mounting fasteners will be required to mount drawbar to front cross tube of mower. Contact your local Authorized Toro Distributor for assistance.

2. Secure lift bracket to #1 lift chain (rear center) with a long shackle, clevis pin and cotter pin (Fig. 16).

Note: Make sure there are no kinks or twists in chain before installing cutting units.

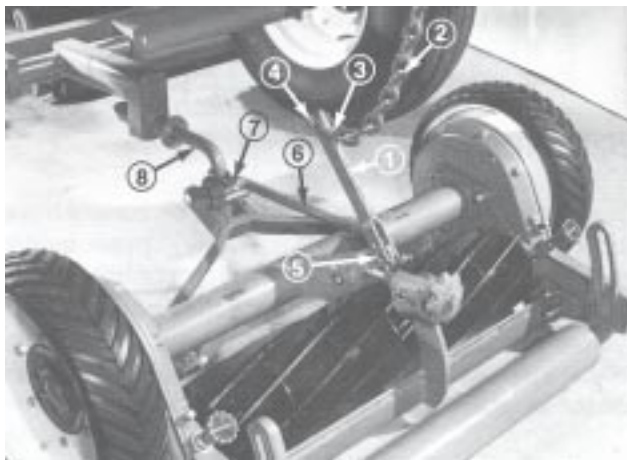


Figure 16

- | | |
|----------------------------|-----------------------|
| 1. Lift bracket | 5. Capscrew & locknut |
| 2. #1 lift chain | 6. Spring |
| 3. Long shackle | 7. S-hook |
| 4. Clevis pin & cotter pin | 8. Lift bail |

3. Secure lift bracket to mower mounting bracket with a 3/8-16 x 1-1/2" lg. capscrew and 3/8-16 locknut (Fig. 16). Use bottom mounting hole in lift bracket.
4. Hook spring to upper mounting hole in lift bracket and other end of spring to lift bail with S-hook (Fig. 16).
5. On remaining mowers, secure lift chains to mower mounting bracket with long shackles, clevis pins and cotter pins (Fig. 17).

Note: Make sure there are no kinks or twists in chain before installing cutting units.

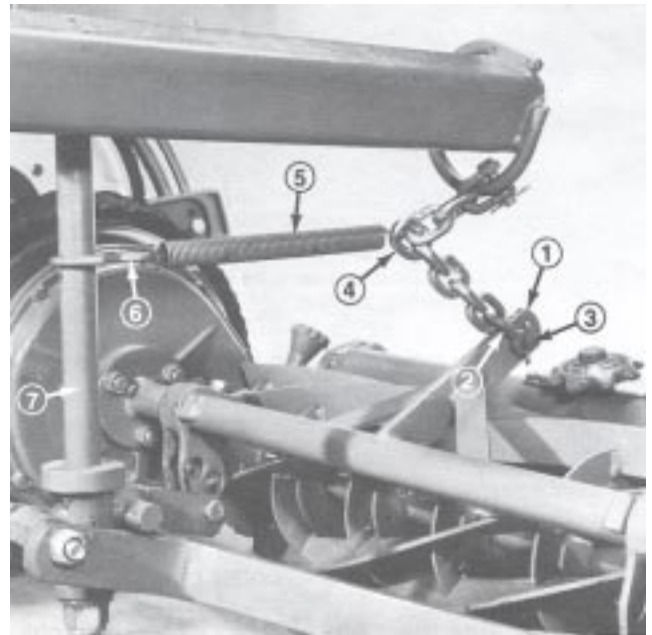


Figure 17

- | | |
|----------------------------|--------------|
| 1. Mounting bracket | 5. Spring |
| 2. Long shackles | 6. S-hook |
| 3. Clevis pin & cotter pin | 7. Lift bail |
| 4. Fifth link from mower | |

6. Hook spring to fifth link in chain from mower and secure other end of spring to lift bail with S-hook (Fig. 17).

Check Tire Pressure

Correct air pressure is 24-28 psi.

Operation

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

Controls

The controls are conveniently located on control tower at front of frame. To raise mower(s), push control lever(s) up, to lower mower(s) push control lever(s) down. Hold lever(s) in their respective positions until cycle is completed, then lever(s) will return to neutral. To partially raise or lower mower(s), partially actuate control lever(s) to move mowers as desired.

The transport frame is equipped with an open center hydraulic system, and designed for use with tractor using same system. Special precautions must be taken if tractor is not an open center hydraulic system. Determine which system is on tractor and use the following operating procedures:

1. Open center hydraulic system on tractor and open center hydraulic system on transport frame.

- Connect supply/return hoses to tractor valve couplers. Make sure high pressure line is connected to inlet port on frame valve.
- Restrain tractor hydraulic directional control valve lever to allow a continual flow of fluid to the transport frame valve.
- Start tractor and raise or lower mowers using control levers.

Note: If mowers will not raise or lower, supply/ return hoses may be reversed. Reinstall couplers reversing position. Mark hoses for future identification or connect a male and female coupler section to transport hoses to prevent reversal.

Important After disconnecting supply/return hose couplers from tractor valve always return tractor hydraulic directional control valve lever to neutral, to deactivate "remote" hydraulic feature.

2. Closed center hydraulic system on tractor and open center hydraulic system on transport frame.

Note: A closed center conversion kit is available from your local Toro Distributor and is recommended for use with this type of system. If kit is not used, follow these procedures for operation.

- Connect supply/return hoses to tractor valve couplers.
- Start tractor.

- Tractor hydraulic directional control lever must be actuated simultaneously with control levers on transport frame. Do not restrain tractor valve lever permanently, damage may occur to system.
- Raise or lower mowers using control levers.

Note: If mowers will not raise or lower, supply/ return hoses may be reversed. Reinstall couplers reversing position. Mark hoses for future identification, or connect a male and female coupler section to transport hoses to prevent reversal.

3. Closed center hydraulic system on tractor and closed center conversion kit mounted to transport frame valve.

- Connect supply/return hoses from frame valve to tractor valve couplers.
- Restrain tractor hydraulic directional control valve lever to allow continual pressure at frame valve.

Note: When transporting frame, return tractor control valve lever to neutral because the cylinders may gradually extend causing lift arms to lower.

- Start tractor and raise or lower mower using control levers.

Note: If mowers will not raise or lower, supply/ return hoses may be reversed. Reinstall couplers reversing position. Mark hoses for future identification, or connect a male and female coupler section to transport hose to prevent reversal.

Important After disconnecting supply/return hose couplers from tractor valve, always return tractor hydraulic directional control valve to neutral.

4. Open center hydraulic system on tractor and closed center conversion kit mounted to transport frame valve.

- NEVER use this combination.

Training Operation

Before mowing for the first time, practice operating your Tractor and Transport Frame in a large, clear, level area. Start, stop, raise and lower mowers and maneuver the machine with all mowers down to develop skills necessary to keep control of the extreme outboard mowers to prevent hitting obstacles. Also, practice operating at transport speeds with mowers in transport position to achieve familiarity with all types of operating conditions.



Caution



Maximum recommended transport speed is 20 miles per hour (32 km/hr) where conditions permit.

Mowing Operation

1. Be sure all mowers are properly adjusted; height of cut, bedknife to reel, all mowers in gear. Consult the mower operators manual for proper adjustment procedures.
2. When arriving at area to be mowed, remove safety strap and lockup pins and approach area with mowers in transport position.
3. Push the control levers downward to lower the mowers with frame in motion to eliminate possibility of spinning tractor drive wheels on the turf causing turf damage. Use the diagram on top of control panel as a guide to lowering mowers (Fig. 18).

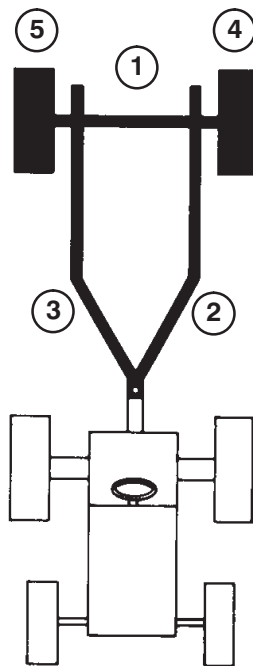


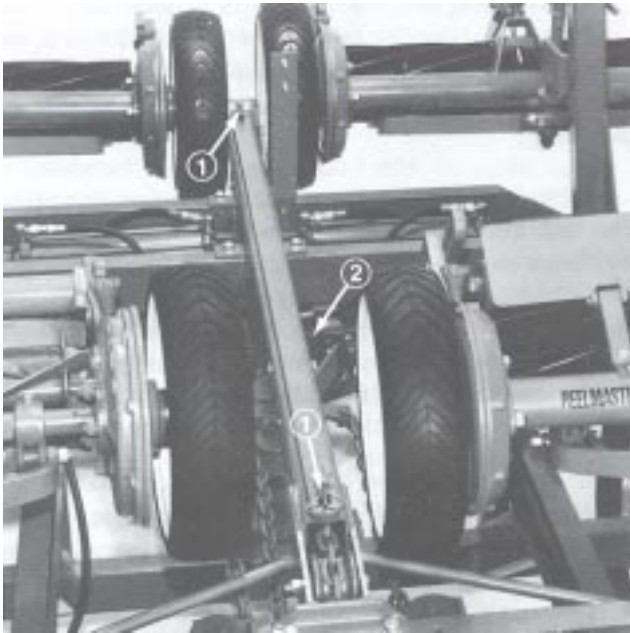
Figure 18

Important Make sure that no persons are working on or near the mowers before raising or lowering.

4. It usually works best to mow the outer portion of the area first, then work your way to the center. Down shift the tractor prior to climbing a steep incline to eliminate the need to downshift halfway up which could cause tire slippage and turf damage. Do not raise the mowers above halfway while operating on severe hillsides or tractor and frame stability may be affected. Do not accelerate when making a turn on turf area. This will cause the tires to damage the turf.
5. Vary the mowing speeds to match the terrain conditions. Slow down in rough terrain conditions to keep the mowers from bouncing. Never exceed six miles per hour (9.7 km/hr). Traveling too fast can cause mechanical damage to the mowers and does not significantly increase the overall efficiency. Mowing at four to six miles per hour (6.4 to 9.7 km/hr) produces the finest turf appearance.
6. Reverse the direction of travel each time an area is mowed. This reduces a grain condition in the turf where the grass tends to grow in the direction of mower travel. Occasionally mowing at 90 degrees to the usual mowing direction will also contribute to reducing the condition.
7. Reduction in compaction of the soil and turf can be achieved by occasionally leaving one or two of the outboard mowers in the transport position while mowing the periphery of the mowing area. This offsets the tractor and mower wheel tracks from the previous mowing and prevents operating in the same path continuously. On golf courses, cross cut each end of the fairway at the tee and green to reduce the amount of travel at these locations. Considerable traffic is concentrated in these areas by golfers and carts. Any reduction in travel by the mowing equipment is beneficial to the turf.
8. When mowing around obstacles such as trees, etc., one or more cutting units may be raised to narrow overall width.

Transport Operation

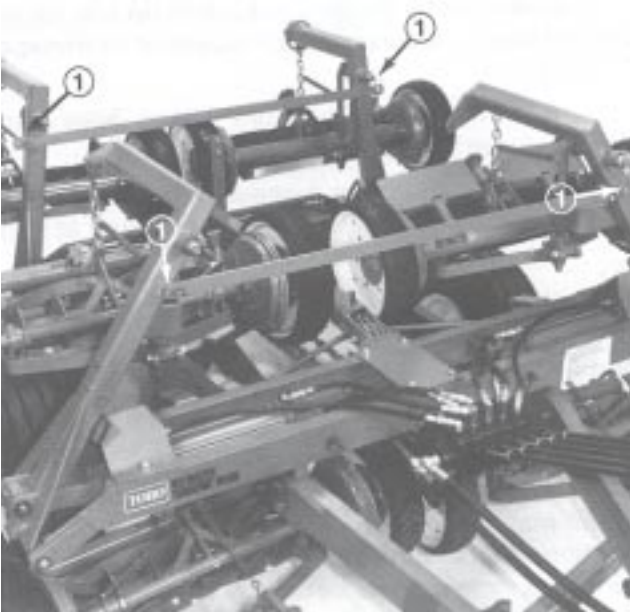
1. Make sure that all mowers are in full transport position before moving to the next mowing area.
2. Remove hairpin cotters securing transport strap to center frame channel and lift off strap (Fig. 19).



Unit shown with 5-7 Conversion Kit installed

Figure 19

1. Hairpin cotters
 2. Transport straps
-
3. Mount transport strap to mounting pins on lift arms and secure with hair pin cotters (Fig. 20).



Unit shown with 5-7 Conversion Kit installed

Figure 20

1. Mounting pins on lift arms
-

4. Remove hairpin cotter securing lockup pin to center cylinder rest (Fig. 21).

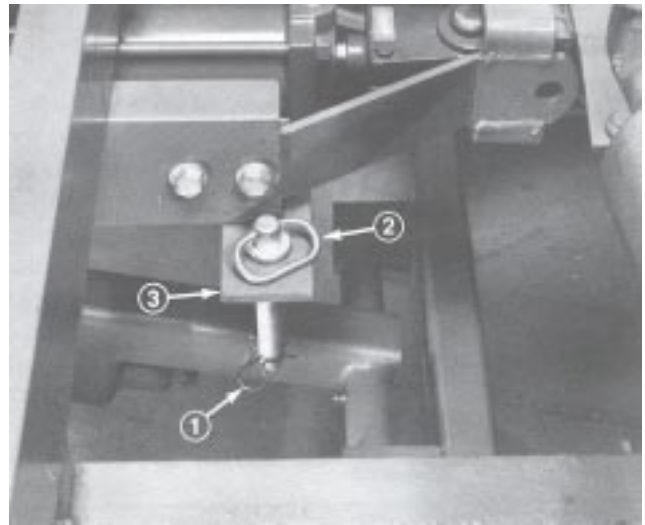


Figure 21

1. Hair pin cotter
 2. Lockup pins
 3. Cylinder rest
-

5. Slide lockup pin through holes in lockup bracket and secure with hairpin cotter (Fig. 22).



Figure 22

1. Mounting hole
 2. Lockup bracket
 3. Lockup pin
 4. Hair pin cotter
-

Note: In some areas there are regulations requiring a slow moving vehicle sign be attached to vehicle during transport. A mounting bracket (Fig. 23) is attached to rear cross channel of transport frame. A standard slow moving vehicle sign will fit bracket.



Caution



Never exceed 20 MPH (32 km/hr). Re-duce speed and shift into a lower gear before descending a steep or long grade.

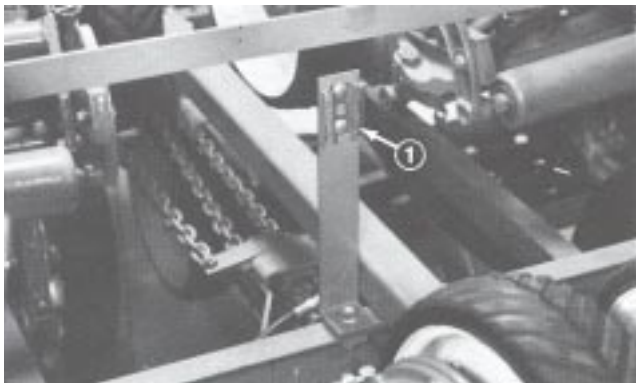


Figure 23

1. Slow moving vehicle mounting bracket

6. When mowing is to be resumed, remove transport strap from lift arms. Store on center frame channel and secure with hairpin cotteners (Fig. 19). Remove lockup pin secured to lockup bracket and secure to cylinder rest with hairpin cotter (Fig. 21).

Inspection And Clean-up After Mowing

At the completion of mowing operation, thoroughly wash the machine with a garden hose without a nozzle so excessive water pressure will not cause contamination and damage to seals and bearings. After cleaning, it is recommended the machine be inspected for possible hydraulic fluid leaks, damage or wear to hydraulic and mechanical components and the cutting units checked for sharpness.

Lubrication

Apply No. 2 grease to all hydraulic frame fittings and SAE 30 engine oil to all wear or friction points every 50 hours of operation. There are 25 grease fittings on the Transport Frame. Clean the grease fittings with a clean rag prior to greasing to make sure no foreign matter will be forced into the bushings with the lubricant. While applying grease, make certain the bushings are taking grease. Apply lubricant to the fitting until some of the grease comes out from the sides of the bushings.

Wipe the fittings and sides of the bushings clean after servicing.

Lightly oil wear or friction points whenever grease fittings are being serviced. The grease fittings and wear and friction points are indicated in the following pictures.

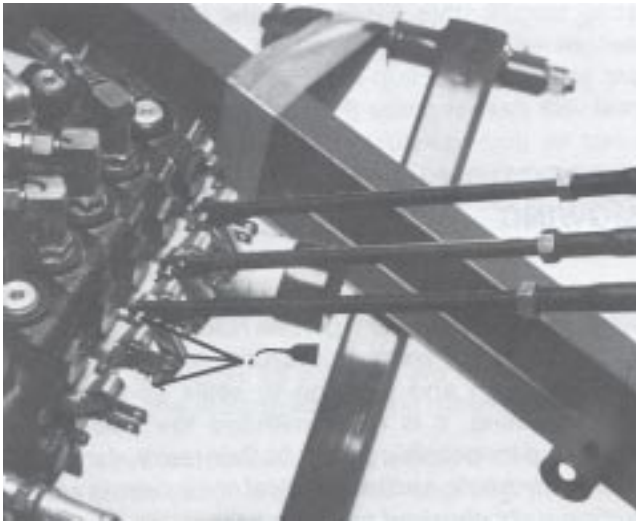


Figure 24



Figure 25

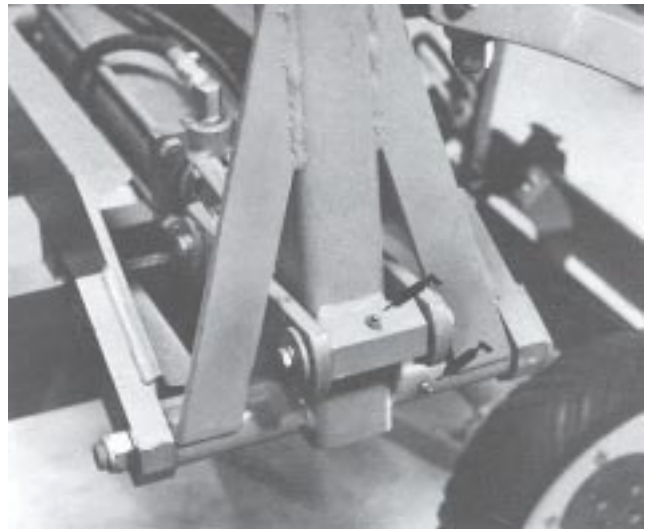


Figure 26

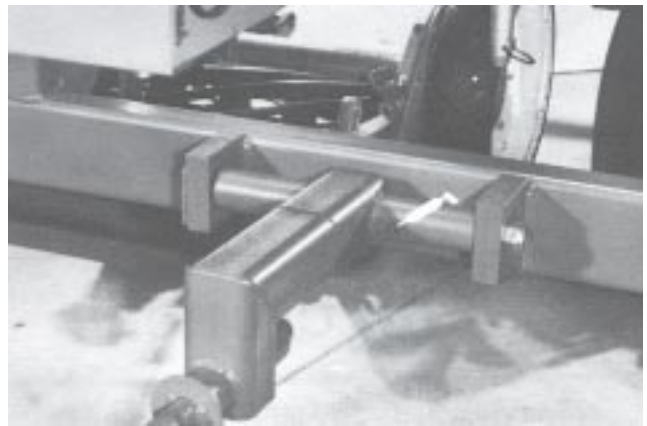


Figure 27

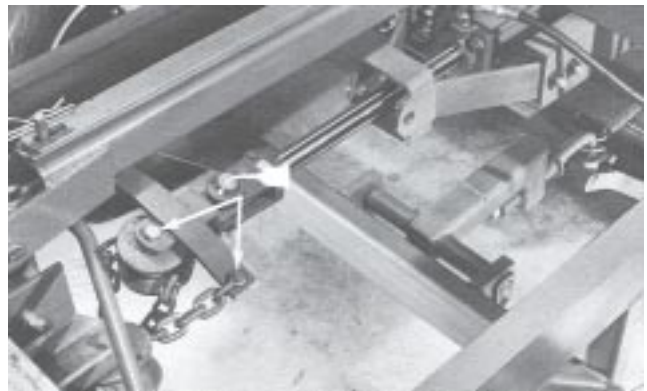


Figure 28

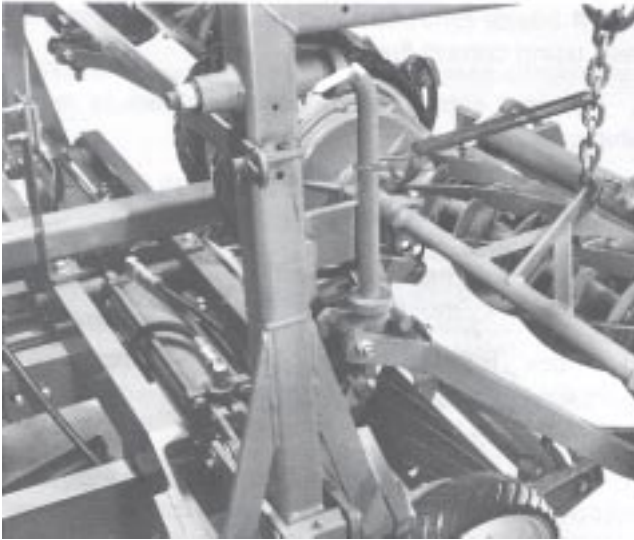


Figure 29

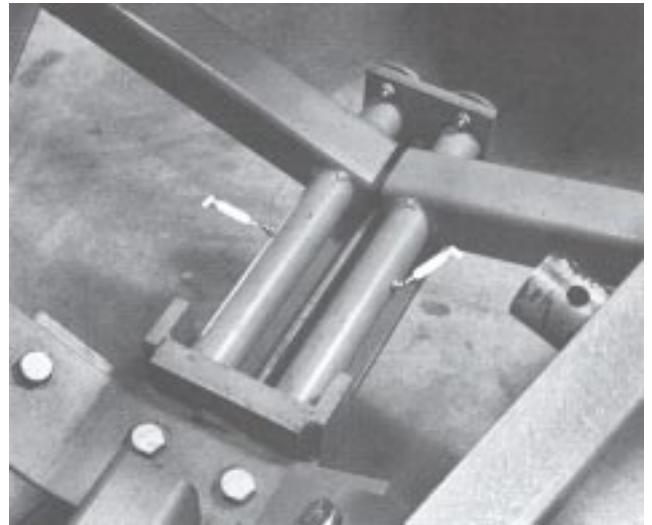


Figure 31

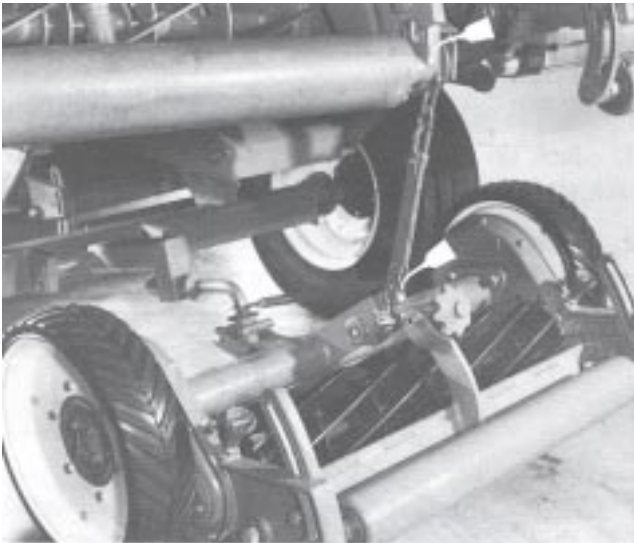


Figure 30

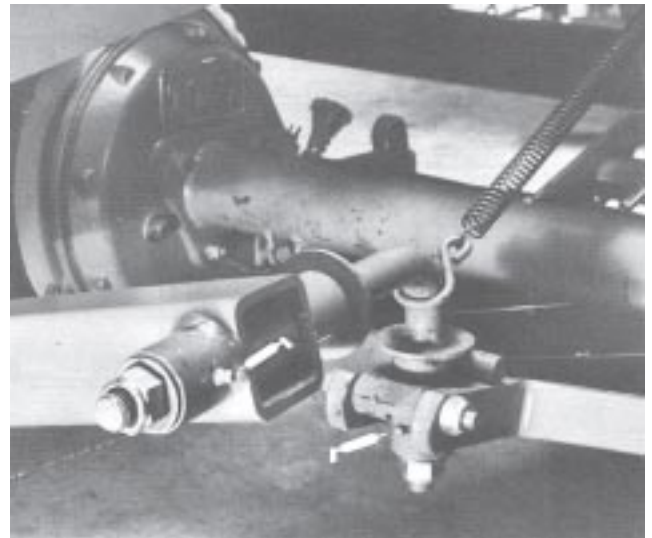


Figure 32

Maintenance

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

Changing Hydraulic Fluid

Drain and replace the hydraulic system fluid whenever the tractor fluid is changed, if fluid is not compatible with tractor fluid, or if fluid becomes contaminated.

1. Start tractor, remove all cutting units, and raise lift arms until all lift cylinders are fully retracted, then stop tractor.
2. Disconnect supply/return hose couplers from tractor couplers.
3. Disconnect supply/return hoses from frame control valve and drain hoses into drain pan.
4. Disconnect hydraulic hoses connected to front row of control valve, Row "A" (Fig. 33). Drain each hose into drain pan and reconnect to valve.

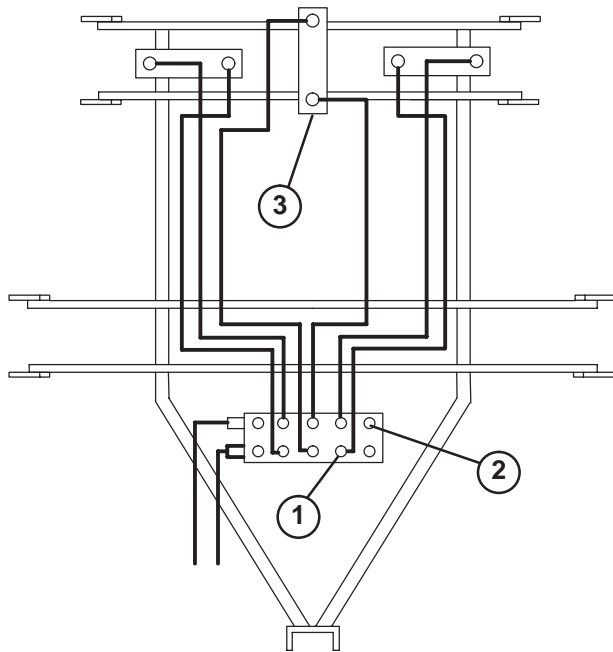


Figure 33

1. Row "A"
2. Row "B"
3. #1 Lift cylinder

5. Disconnect hydraulic hoses connected to back row of control valve, Row "B" (Fig. 33). Drain each line and cylinder by carefully pulling down lift arms until all fluid is pumped out of hoses and cylinders and into drain pan. Reconnect hoses to control valve.

Note: #1 cylinder is not connected to a lift arm to aid in draining cylinder. Extend cylinder using a winch or other pulling devise.

6. Connect supply/return hoses to frame control valve.
7. Fill tractor hydraulic fluid reservoir to appropriate level, using correct fluid.
8. Connect supply/return hose couplers to tractor valve couplers.
9. Start tractor, raise lift arms until all lift cylinders are fully retracted and then stop tractor.

Note: Do not manually pry lift arms up to retract cylinders, or cylinder damage may result.

10. Check hydraulic fluid level in tractor. Add approximately 2 gallons of appropriate hydraulic fluid to raise fluid to proper level.
11. Start tractor and cycle lift arms up and down at least two full cycles. Recheck hydraulic fluid level with lift arms RAISED and add fluid if necessary .
12. Reinstall cutting units.

Wheel Bearings

To replace the wheel bearings proceed as follows:

1. Jack up the wheel being serviced. Support with jack stand to prevent it from falling.
2. Remove the hub cap, cotter key, slotted nut, and washer (Fig. 34).

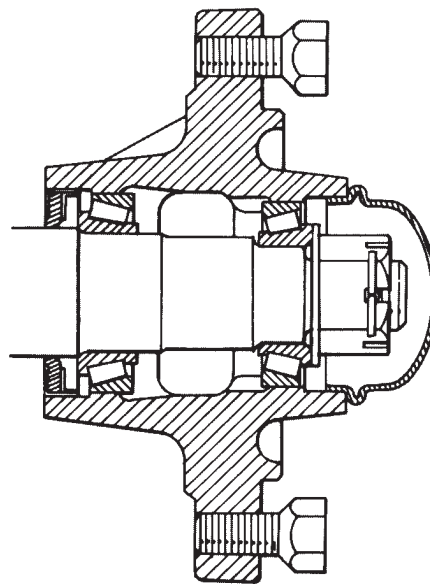


Figure 34

3. Pull off the wheel and outer bearing cone. Remove the inner bearing cone and seal from the hub. A slot in the hub is provided so the cone and seal can be removed with the bearing cup. Drive against bearing cup.
4. Clean the hub with a solvent.
5. Press the new cups in the hub, being certain they are fully seated.
6. Pack the new cones with wheel bearing grease. Coat bearing journal and adjacent bearings in hub.
7. Grease the sealing lip and slip the new seal on the extended race of the inner bearing cone.
8. Reassemble in reverse order of disassembly.
9. Tighten the slotted nut until the bearings bind slightly when rotating the wheel by hand. Back off the slotted nut to the nearest cotter pin hole and secure with a new cotter pin.
10. Reinstall the hub caps.

Lift Arm Bushing Replacement

To replace the lift arm bushing proceed as follows:

1. Position lift arm in the down position.
2. Remove cutting unit.
3. Remove nut from end of pin (Fig. 35).
4. Remove capscrew from pin assembly.
5. Remove link between hydraulic cylinder and lift arm.

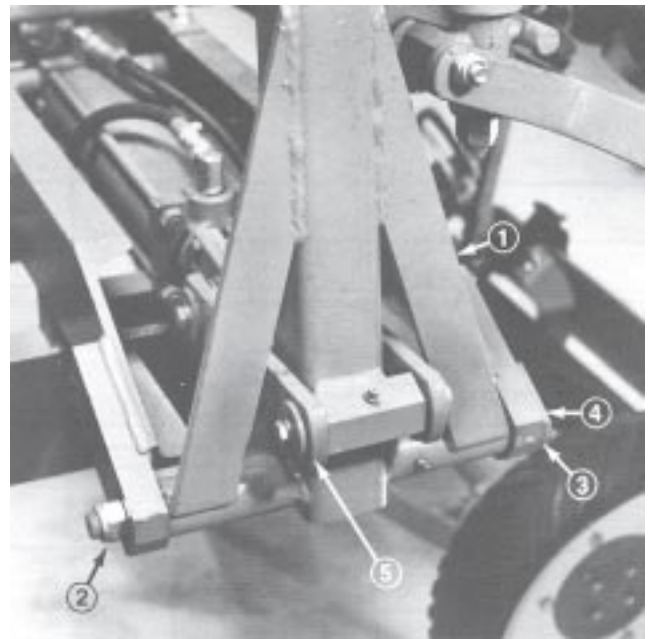


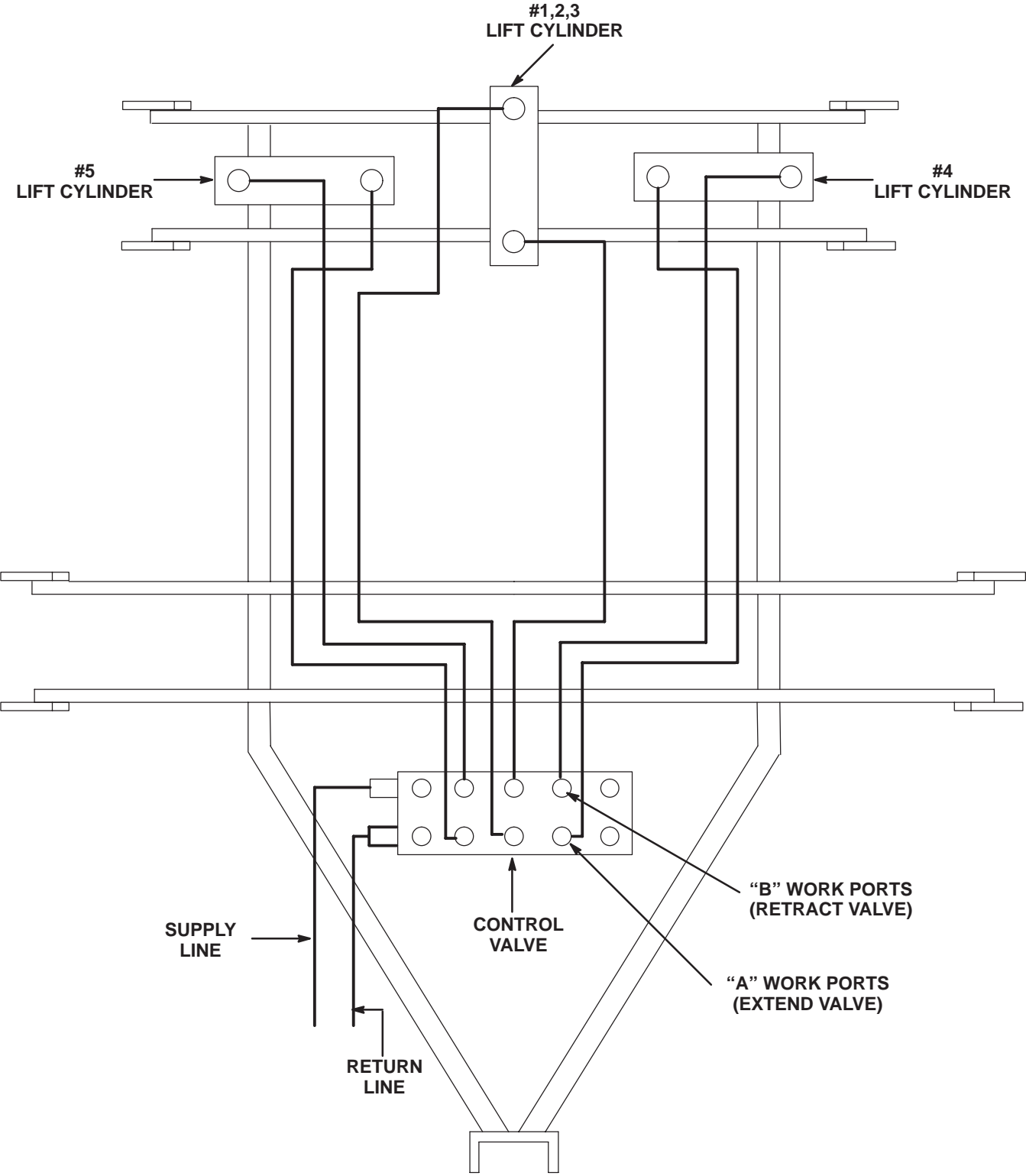
Figure 35

- | | |
|-----------------|-------------|
| 1. Lift arm | 4. Capscrew |
| 2. Nut | 5. Link |
| 3. Pin assembly | |

6. Remove pin assembly.
7. Remove bushings in lift arm.
8. Insert and size new bushings and replace pin.
9. Replace capscrew and nut.
10. Reinstall link.
11. Grease bushing with Mobilux #2 grease or equivalent.

Important It may be necessary to drive the pin assembly out of the lift arm. Be careful not to damage the threads.

Hydraulic Schematic





The Toro General Commercial Products Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

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

* Product equipped with hour meter

Instructions for Obtaining Warranty Service

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

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

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
952-888-8801 or 800-982-2740
E-mail: commercial.service@toro.com

Owner Responsibilities

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

Items and Conditions Not Covered

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

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

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

Parts

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

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

General Conditions

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

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

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

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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

Countries Other than the United States or Canada

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