



MODEL 03517 - 20001 & UP

INSTALLATION INSTRUCTIONS

4 WHEEL DRIVE KIT

Reelmaster 223 / 5100 D Traction Unit

DESCRIPTION	QTY.	USE
Capscrew 1/2 -13 x 1-1/4"	4	Mount Rear Axle Stops
Locknut 1/2 - 13	4	
Flatwasher 1.62 O.D. x 1.06 I.D. x .018 thk.	3	
Washer 1.62 O.D. x 1.06 I.D. x .318 thk.	1	
Washer 1.62 O.D. x 1.06 I.D. x .032 thk.	2	
Cylinder Support	1	
Shims	2	
Capscrew m10 x 35mm	4	
Steering Cylinder	1	
Shims	2	
Cylinder Pin	1	
Self Tapping Screw	1	
Capscrew 3/4 - 10 x 2-1/8" lg.	1	
Thrust Washers	2	
Wheel Spacer	2	
Wheel Bolt	10	
Cable Tie	1	
SCR Valve	1	Mount In Hydrostat
Cutting Unit Stop	1	Mount On Left Rear Lift Arm
Capscrew 3/8 - 16 x 1"	1	
Locknut	1	
Cable Tie	2	Reposition Hoses on Rear Lift Arms
Decal	1	
Traction Shaft	1	Mount Drive Shaft
Bearing Assembly	1	
Bearing Bracket	1	
Carriage Bolt 5/16 - 18 x 1-1/4"	3	
Lock Nut 5/16	3	
Socket Hd. Screw 3/8 - 16 x 3/4"	1	
Capscrew m8 x 25	1	
Lockwasher m8	1	
Flatwasher m8	1	
Shims	2	
Locking Collar	1	
Seat Belts	1	Install Seat Belts To Seat
Capscrew 7/16 - 20 x 1"	2	
Lockwasher 7/16	2	
Roll Bar Assembly	1	Mount Roll Bar To Frame
Capscrew 1/2 -13 x 1-1/4"	9	
Locknut 1/2-13	3	
Flatwasher 1/2"	9	
Lockwasher 1/2"	9	
Decals	2	Apply To Machine
Installation Instructions	1	Read Before Operating Machine
Parts Catalog	1	
Registration Card	1	Fill Out And Return To Toro

INSTALLATION INSTRUCTIONS

REMOVE OLD AXLE

1. Block front tires and jack up rear of machine until there is approximately one inch clearance between rear tires and ground. **SECURELY BLOCK FRAME** and remove rear wheels.
2. Thoroughly clean around hydraulic hose connections to steering cylinder and disconnect hoses from cylinder.
3. Remove capscrew and washer from pivot pin securing axle to axle support (Fig. 1).
4. Pull pivot pin out of axle support, allowing axle to be lowered to floor and removed.

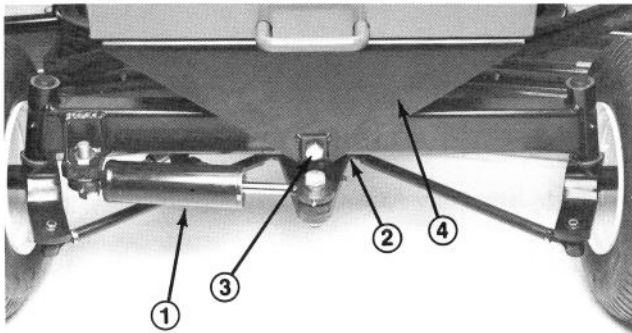


Figure 1

- | | |
|----------------------|----------------------|
| 1. Steering cylinder | 3. Capscrew & washer |
| 2. Pivot pin | 4. Axle support |

MOUNT REAR AXLE STOPS

1. Mount an axle stop to each side of rear frame member with (2) 1/2 - 13 x 1-1/4" lg. capscrews and locknuts. Position stops as shown in fig. 2.

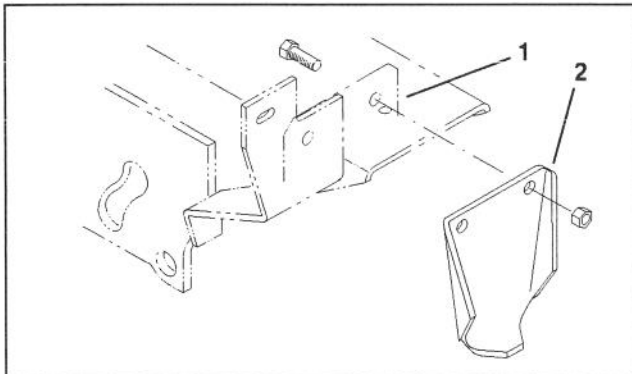


Figure 2

- | | |
|----------|--------------|
| 1. Frame | 2. Axle stop |
|----------|--------------|

INSTALL NEW AXLE

1. Mount new axle to axle support with new washers and pivot pin previously removed (Fig. 3 & 4). Install pivot pin from front of axle support. Washers to be positioned between front and rear of axle and axle support as shown in figure 3. One or two of each washer may be required between front of axle and axle support.

2. Secure pivot pin to axle support with capscrew and washer previously removed. Apply medium strength Loctite to capscrew before installing.

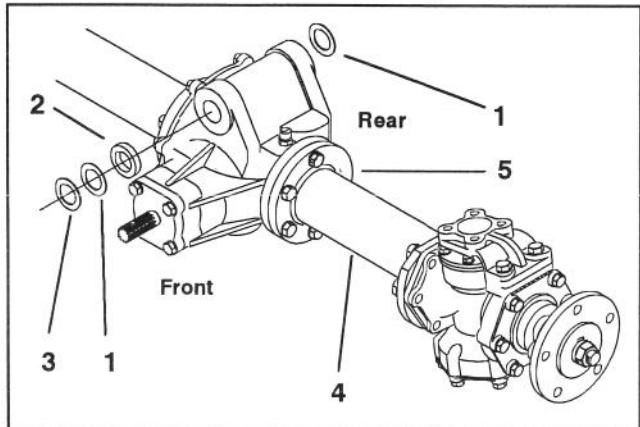


Figure 3

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|--|
| 1. Flat washer (1.62 O.D. x 1.06 I.D. x .018 thk.) |
| 2. Washer (1.62 O.D. x 1.06 I.D. x .318 thk.) |
| 3. Washer (1.62 O.D. x 1.06 I.D. x .032 thk.) |
| 4. Axle tube |
| 5. Remove Screws Here (both sides of axle) |

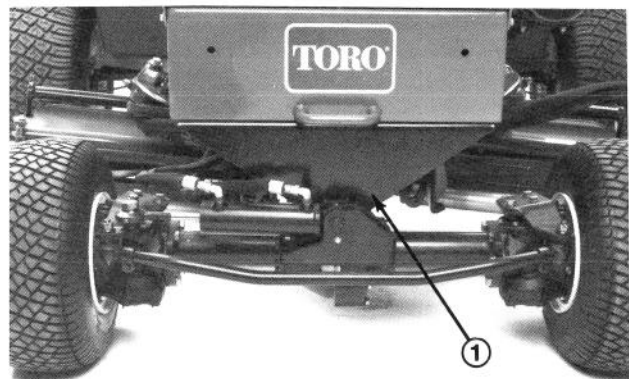


Figure 4

1. Rear of axle support

3. Remove (2) rear m10 x 30 mm capscrews and lockwashers securing right and left axle tubes to axle. Retain lockwashers and discard capscrews (Fig.3).

4. Mount cylinder support to axle with (2) shims (if required), (4) lockwashers (previously removed) and (4) new m10 x 35 mm capscrews (Fig. 5). Torque capscrews to 25-35 ft-lbs.

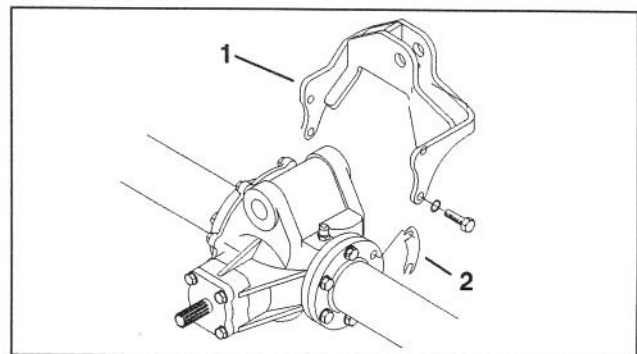


Figure 5

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|---------------------|---------|
| 1. Cylinder Support | 2. Shim |
|---------------------|---------|

INSTALLATION INSTRUCTIONS

- Secure cap end of steering cylinder to cylinder support with (2) shims, cylinder pin and self tapping screw as shown in figure 6.

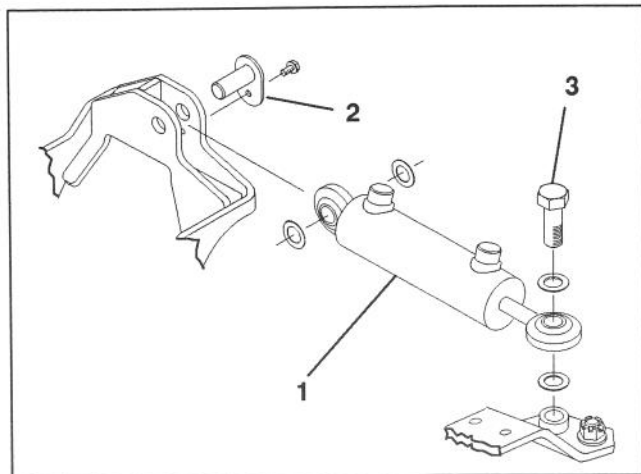


Figure 6
1. Steering Cylinder
2. Cylinder Pin
3. Capscrew

- Secure rod end of steering cylinder to steering arm with a 3/4 - 10 x 2-1/8" lg. capscrew and (2) thrust washers as shown in figure 6. Apply medium strength blue Loctite to capscrew before assembly. Tighten capscrew to 130-150 ft-lb.

IMPORTANT: If steering cylinder is ever removed, make sure medium strength blue Loctite is applied to capscrew before assembly and capscrew is torqued to 130-150 ft-lb.

- Connect hydraulic hoses to steering cylinder. Check for binding in hoses by pivoting axle up and down until it contacts stops. Secure hoses together with a cable tie.

- Mount wheels to axle hubs with wheel spacers and wheel bolts (5 each) (Fig. 7). Torque wheel bolts to 45-50 ft-lbs.

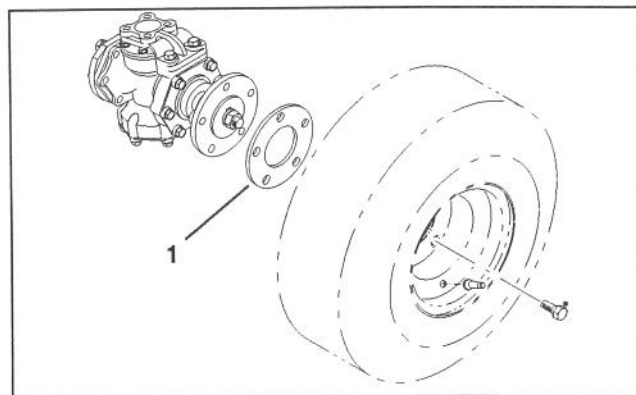


Figure 7
1. Wheel spacer

Note: To hold wheel spacer on hub when installing wheel, apply a small amount of grease to hub side of spacer before positioning on hub.

- Remove blocks from under machine frame and lower to floor.

REPLACE HYDROSTAT VALVE

- Locate plug on lower left side of hydrostat. Thoroughly clean area around plug to prevent contamination from entering opening when removing plug (Fig. 8).
- Remove plug. Carefully remove spring and SCR valve (Fig. 6, inset). Note position of spring and valve when removing.

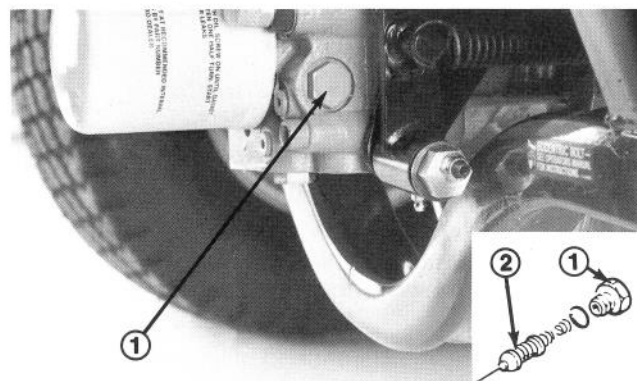


Figure 8
1. Plug
2. SCR Valve

- Check condition and position of O-ring on plug and adjust or replace if necessary. Install new valve, spring and plug into hydrostat.

INSTALL CUTTING UNIT STOP

- On left rear lift arm only, mount a cutting unit stop with a 3/8-16 x 1" capscrew and locknut. Position stop as shown in fig. 9.

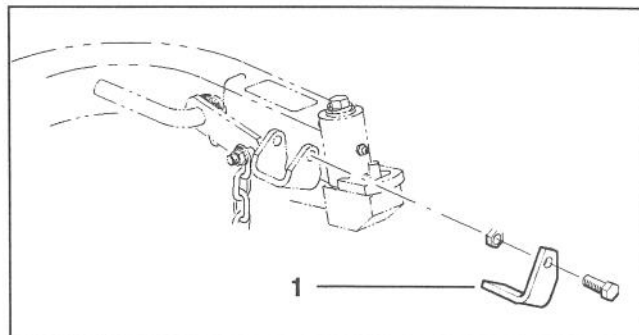


Figure 9
1. Cutting Unit Stop

REPOSITION HOSES ON REAR LIFT ARMS

- Loosen nuts securing reel motors to the rear cutting units and disconnect motors from cutting units.
- Remove the clamp securing hoses to side of left lift arm.

INSTALLATION INSTRUCTIONS

- Using dimensions shown in figure 10, locate, mark and drill a .228" dia. hole thru center of both walls in side of left lift arm.

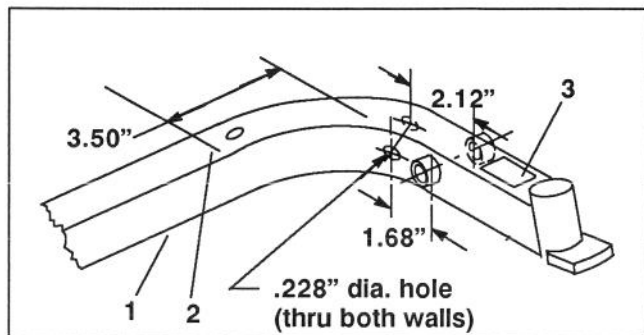


Figure 10

- Left Lift Arm
- Cable Tie Hoses Here
- Apply New Decal Here

- Reroute hoses from side of lift arm to top of lift arm. Reconnect motor to cutting unit.
- Using new holes, secure hoses to lift arm with clamp and screws previously removed.
- At location shown in figure 10, secure hose to lift arm with a cable tie.
- Approximately .12" from end of lift arm, as shown in figure 10, apply new warning decal.
- Remove the clamp securing hoses to side of right lift arm.
- Using dimensions shown in figure 11, locate, mark and drill a .228" dia. hole thru center of both walls in side of right lift arm.

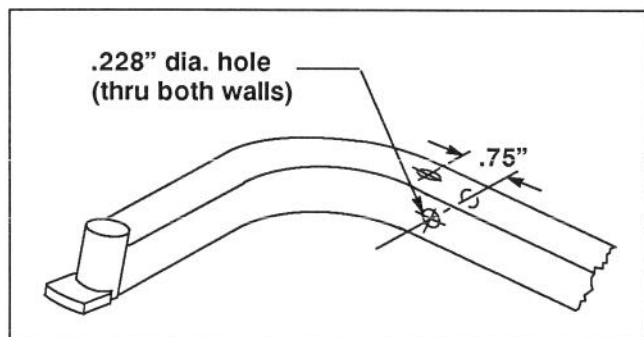


Figure 11

- Right Lift Arm

- Reroute hoses from side of lift arm to top of lift arm. Reconnect motor to cutting unit.
- Using new holes, secure hoses to lift arm with clamp and screws previously removed.
- At approximately midway between lift arm and cutting unit motor, secure hoses together with a cable tie.

INSTALL DRIVE SHAFT

- Apply medium strength Loctite to coupler output shaft on rear of hydrostat (Fig. 12).

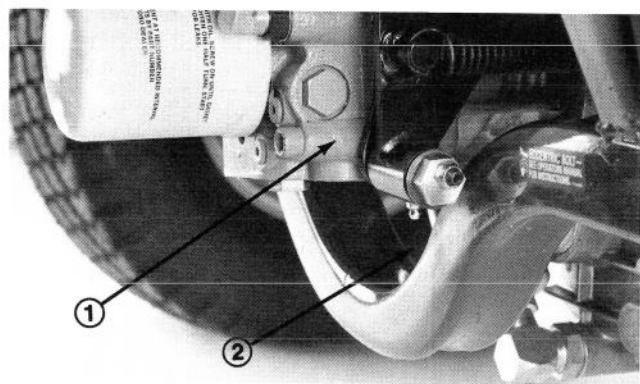


Figure 12

- Hydrostat
- Coupler shaft location

- Thread traction shaft (Fig. 13) (left hand thread) onto coupler output shaft. Do not tighten traction shaft at this time.

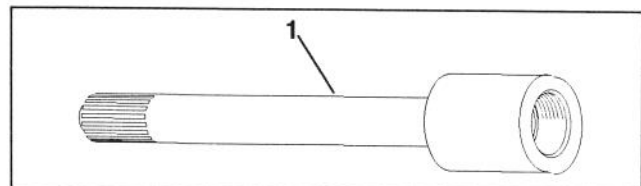


Figure 13

- Traction shaft

- Loosely mount bearing assembly to bearing bracket with (3) 5/16 - 18 x 1-1/4" lg. carriage bolts and 5/16 - 18 lock nuts, as shown in figure 14.

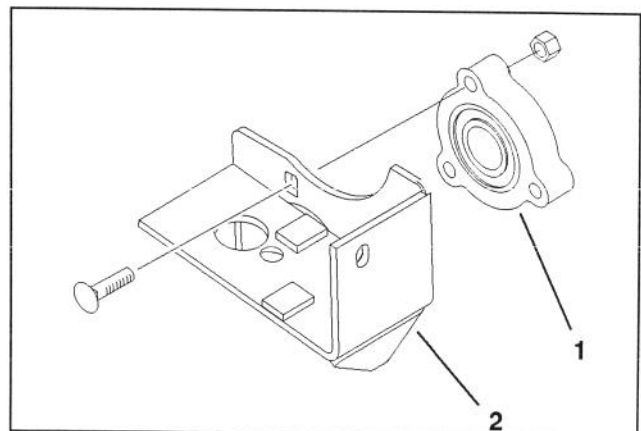


Figure 14

- Bearing Assembly
- Bearing Bracket

- Slide bearing bracket and bearing onto traction shaft, aligning the (2) bearing bracket mounting holes with the holes in rear and bottom of hydrostat (Fig. 15). Loosely mount bottom of bearing bracket to hydrostat with a 3/8 - 16 x 3/4" lg. socket head screw. Mount side of bracket to hydrostat with a m8 x 25 mm capscrew, m8 lockwasher, m8 flat washer and 1 or 2 shims. Determine whether 1 or 2 shims are required between bracket and hydrostat before tightening any fasteners. After shim(s) are in position on capscrew, tighten socket head bolt and capscrew.

INSTALLATION INSTRUCTIONS

5. Slide locking collar onto traction shaft. Do not tighten at this time.

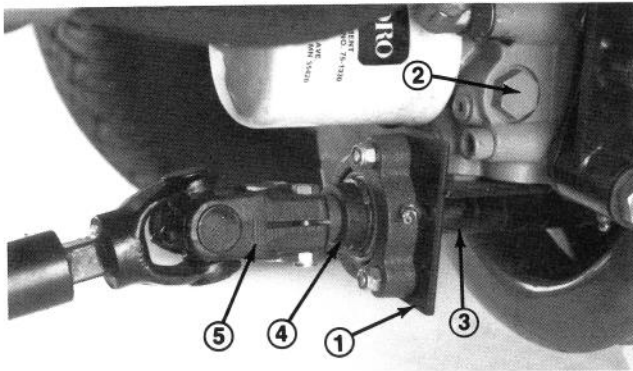


Figure 15

- | | |
|--------------------|----------------------------|
| 1. Bearing bracket | 4. Locking collar |
| 2. Hydrostat | 5. Yoke end of drive shaft |
| 3. Traction shaft | |

6. Remove protective cover from coupler input shaft at front of rear axle. Clean any grease from shaft.
7. Apply never-seize to the splines of traction shaft and axle input shaft.
8. Slide clutch end of drive shaft onto rear axle shaft spline, aligning roll pin hole in shaft with hole in clutch coupling. Install roll pin thru coupling and shaft (Fig. 16).

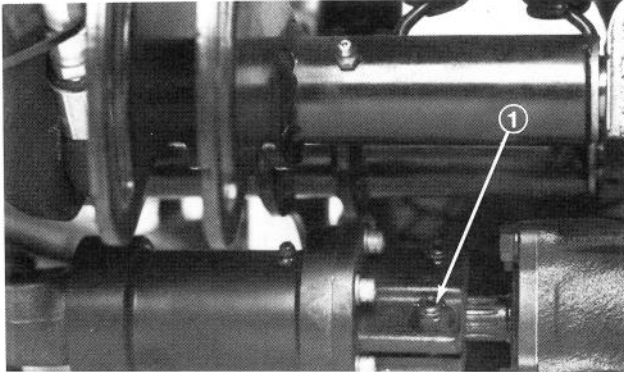


Figure 16

1. Clutch end of drive shaft

9. Tighten (2) capscrews and locknuts securing coupling to shaft.
10. Slide yoke end of drive shaft onto traction shaft spline (Fig. 13).
11. Tighten (2) capscrews and locknuts securing yoke to shaft.
12. Block front tires and jack up rear of machine until there is approximately one inch clearance between rear tires and ground. **SECURELY BLOCK FRAME.**
13. Using an open end torque wrench on the square shaft of the drive shaft assembly, torque the traction shaft (counterclockwise) to 110-120 ft-lb.
15. Tighten lock nuts, securing bearing to bracket.

16. Rotate locking collar it in a clockwise direction, as viewed from the rear of machine. Tighten collar onto shaft by carefully rotating it with a hammer and punch. Tighten set screw.

INSTALL SEAT BELTS TO SEAT

1. Install seat belt to holes in back of seat with (2) 7/16 x 20 - 1" lg. capscrews and 7/16 lockwashers (Fig. 17). Tighten securely. Latch side of belt to be mounted to left side of seat.

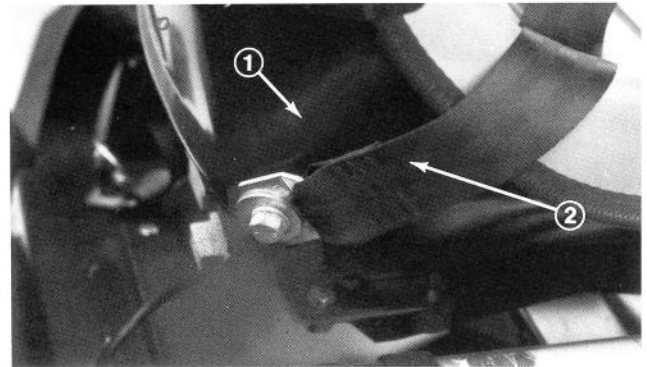


Figure 17

1. Seat 2. Seat Belts

NOTE: When operating machine, always use the seat belt and ROPS together.

INSTALL ROLL BAR

1. Lower roll bar onto frame, aligning mounting holes in sides and front of machine.
2. Secure each side of roll bar to frame with (3) 1/2 x 13 - 1-1/4" lg. capscrews, 1/2" flatwashers and 1/2" lockwashers (Fig. 18).



Figure 18

1. Side of Roll bar

3. Secure front of roll bar to frame with (3) 1/2 x 13 - 1-1/4" lg. capscrews, 1/2" flatwashers, 1/2" lockwashers and 1/2 - 13 locknuts (Fig. 19). Tighten all fasteners securely.

NOTE: When operating machine, always use the seat belt and ROPS together.

INSTALLATION INSTRUCTIONS

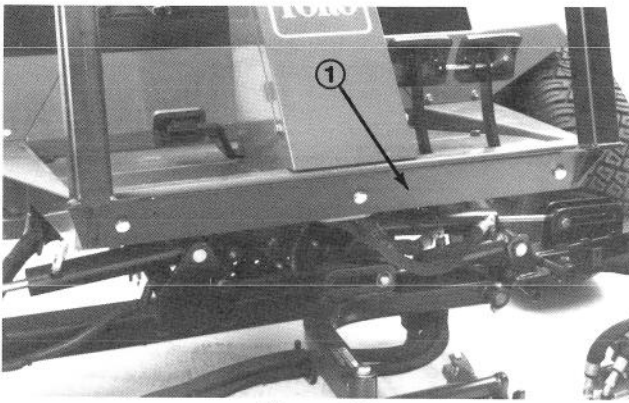


Figure 19
1. Front of Roll bar

mount a decal on side of tool box and on side of control box.

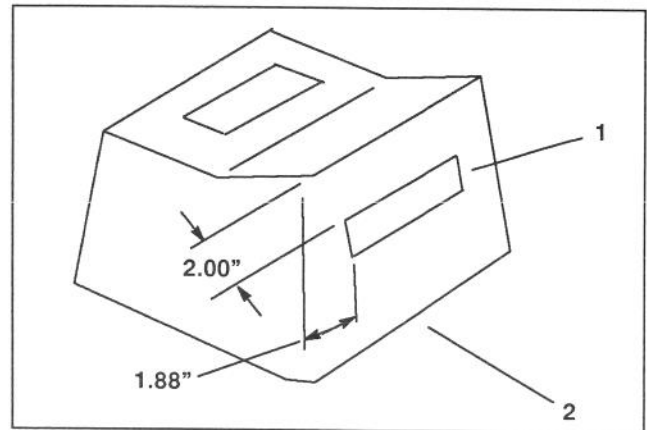


Figure 20

1. Decal 2. Control box

INSTALL DECALS

1. Using dimensions shown in figure 20, position and

BEFORE OPERATING

CHECK REAR AXLE LUBRICANT

The rear axle has three separate reservoirs which use SAE 80W-90 wt. gear lube. Although the axle is shipped with lubricant from the factory, check the level before operating the machine.

1. Position the machine on a level surface.
2. Remove a check plug from each end of axle and make sure lubricant is up to bottom of hole. If level is low, remove one of the mounting bolts above each end plug and add enough lubricant to bring the level up to the bottom of the hole (Fig. 21).

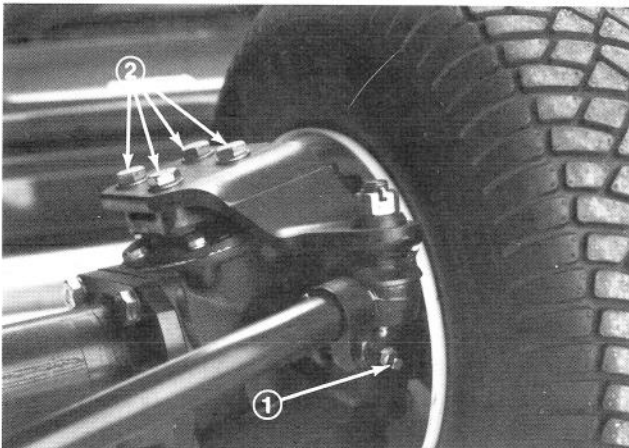


Figure 21

1. Check Plugs (2) 2. Mounting Bolts

3. Remove plug in center of axle and check level. If level is low, add enough lubricant to bring the level up to the bottom of the hole (Fig. 22).

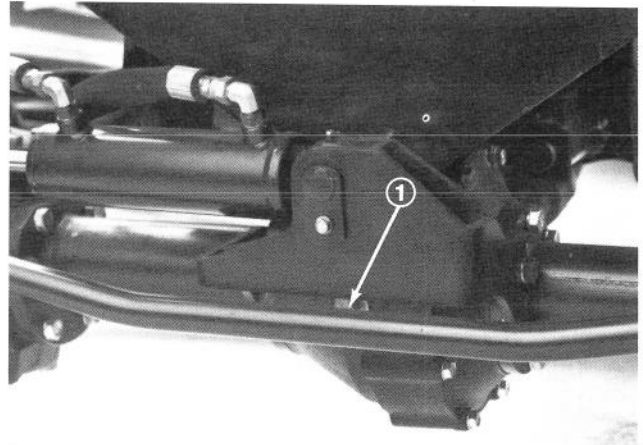


Figure 22

1. Check / Fill Plug

MAINTENANCE

GREASING BEARINGS AND BUSHINGS

There are new grease fittings that must be lubricated regularly with No. 2 General Purpose Lithium Base Grease. If machine is operated under normal conditions, lubricate all bearings and bushings after every 25 hours of operation.

1. The grease fitting locations and quantities are: Drive shaft clutch (1) (Fig. 23); Rear axle tie rod (2), Steering cylinder ball joints (2), Rear axle pivot (1) (Fig. 24); Drive shaft support bearing (1), Rear axle drive shaft (3) (Fig. 25).

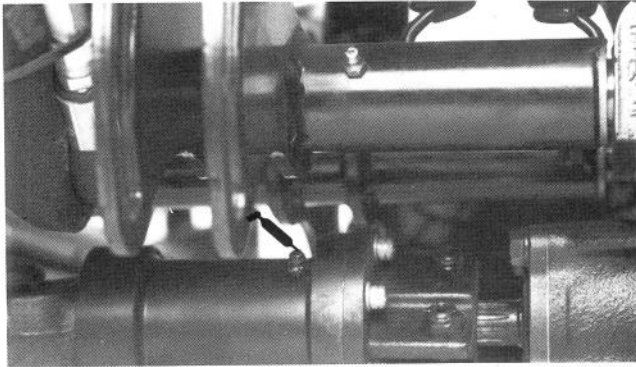


Figure 23

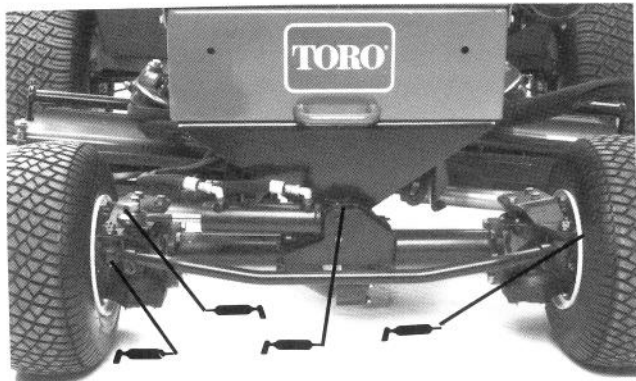


Figure 24



Figure 25

CHANGING REAR AXLE LUBRICANT

After every 500 hours of operation the oil in the rear axle must be changed.

1. Position machine on a level surface.
2. Clean area around the (3) drain plugs, (1) on each end and (1) in the center (Fig. 26).
3. Remove plugs allowing oil to drain into drain pans.
4. **After oil is drained, apply thread locking compound on drain plug threads and reinstall in axle.**
5. Fill axle with lubricant; refer to Check Rear Axle Lubricant.

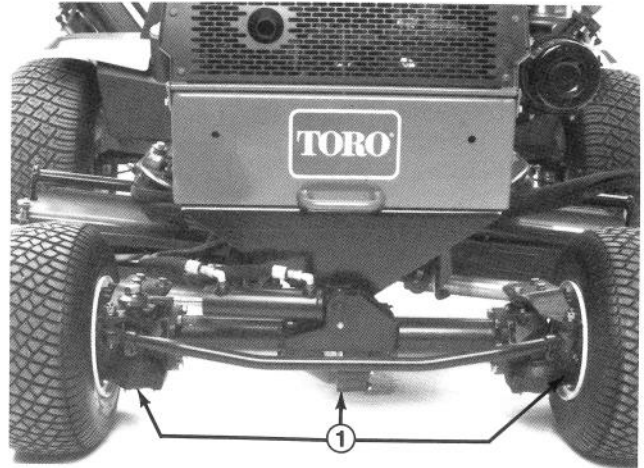


Figure 26
1. Drain Plugs (3)

REAR WHEEL TOE-IN

After every 750 operating hours or annually, check rear wheel toe-in.

1. Measure center-to-center distance (at axle height) at front and rear of steering tires. Front measurement must be 1/8 in. less than rear measurement.
2. To adjust, loosen clamps at both ends of tie rod (Fig. 27).

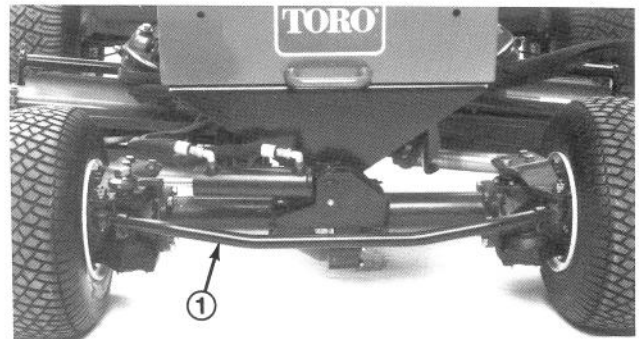


Figure 27
1. Tie Rod

3. Rotate tie rod to move front of tire inward or outward.
4. Tighten tie rod clamps when adjustment is correct.

