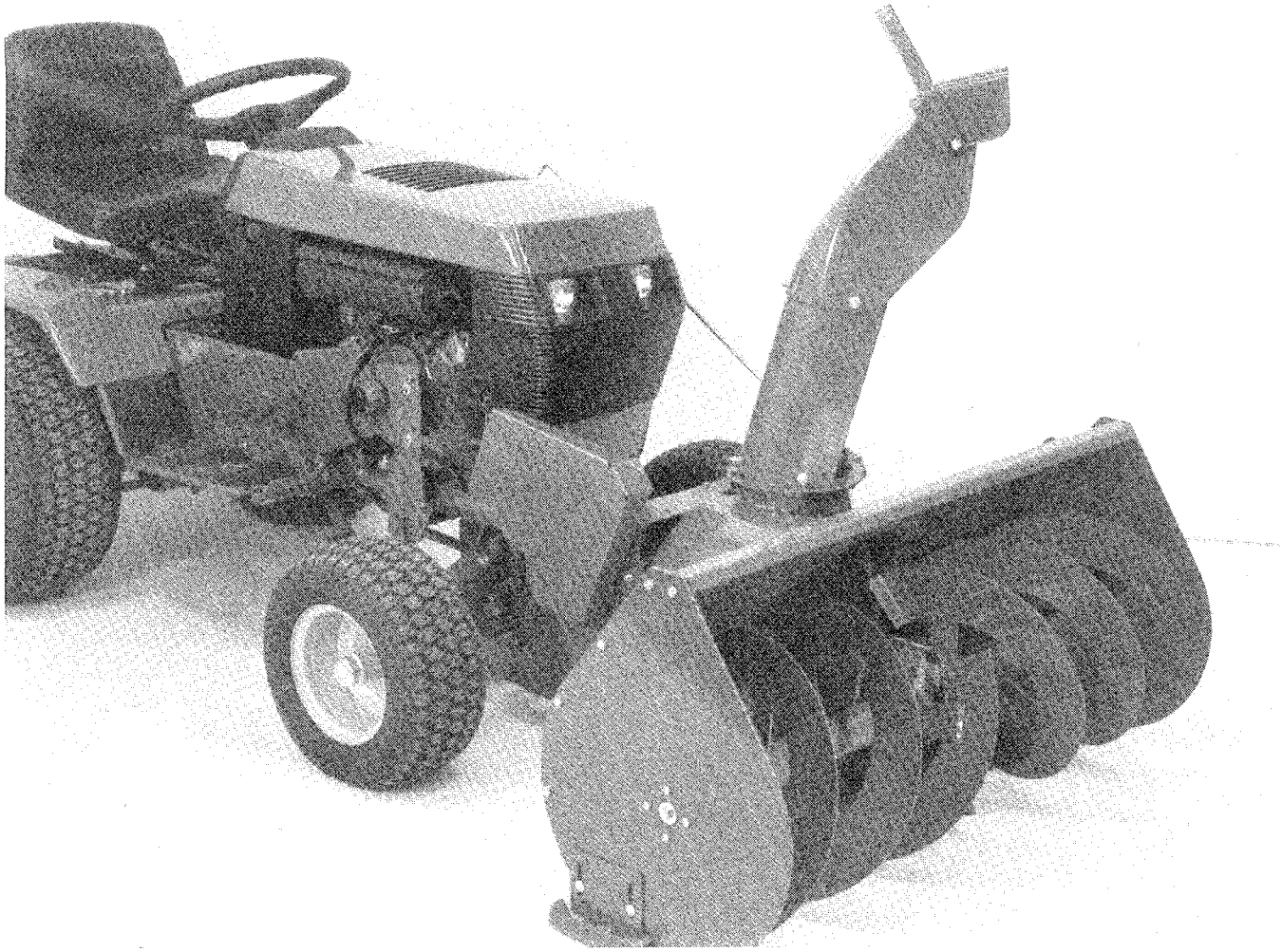
Operating & Maintenance Instructions



44 in. (112 cm) Snowthrower

Garden Tractor Snowthrower

TORO®

Wheel Horse®
Tractors & Riding Mowers

PRINTED IN U.S.A. 0889

PART NUMBER 810672R1

SAFETY SUGGESTIONS

TRAINING

1. Regard your snowthrower as a piece of power equipment and teach this regard to all who operate it.
2. Never allow children or young teen-agers to operate tractor or snowthrower.
3. Be sure you know how to stop tractor and snowthrower at a moment's notice.
4. Instruct children to keep away from area of operation at all times.

PREPARATION

1. Check tractor and snowthrower to make certain both are in good operating condition.
2. Fill gas tank out of doors and avoid spilling gasoline over engine. Do not fill tank with gasoline while smoking or while engine is running.
3. Keep guards and covers in place while operating tractor and snowthrower.

OPERATION

1. Give complete and undivided attention to job at hand.
2. Keep area clear of all persons, particularly small children.
3. Stop engine when tractor is unattended.
4. Disengage PTO clutch when someone approaches.
5. Do not allow anyone other than operator to ride on tractor or to be towed behind.
6. Extreme caution should be exercised under slippery conditions. Reduce forward speed. Install tire chains to traction wheels for added safety.
7. Do not attempt to clear auger, impeller or discharge elbow while engine is running.
8. When changing position of deflector, disengage PTO clutch. Shut off engine.
9. Never direct snow discharge at people or buildings.
10. Disengage PTO clutch when transporting.
11. If snowthrower becomes plugged with snow, or jammed due to hiting a foreign object, disengage PTO immediately and stop tractor engine. Clear snow from spout if plugged, before resuming operation.

⚠ CAUTION ⚠

If auger or impeller is jammed, or bent from hitting foreign object, remove spark plug wire(s) from tractor engine spark plug(s) and then remove foreign object from auger or impeller. If auger or impeller damage is noted, repair prior to continuing operation. Then replace spark plug wire(s) and resume operation.

MAINTENANCE AND STORAGE

1. Follow implicitly the manufacturer's recommendations for maintenance.
2. Have a competent service man make thorough inspection of snowthrower before snow season begins.
3. Store gasoline in a safe container. Store container in a cool, dry place, not in a house or near heating appliances.
4. Keep snowthrower, tractor and gas container in locked storage to prevent children from playing and tampering with them.
5. Maximum snow removal results and safety can be expected only if snowthrower is maintained and operated correctly.
6. Gasoline powered equipment or fuel containers should not be stored in basement or in any closed area where heating appliances or open pilot lights are present.

VEHICLE IDENTIFICATION (VIN) NUMBER

A Vehicle identificatiuon number identifies your Toro Wheel Horse attachment. This number should always be referred to when consulting with your dealer or the factory concerning service, replacement parts, or questions you may have. If VIN plate is removed during repair operations it should always be replaced. For your reference, record below the number from VIN plate on your attachment.

TORO Wheel Horse
P.O. BOX 2649 SOUTH BEND, INDIANA 46680
I.D. NUMBER
MADE IN U.S.A.

MOUNTING INFORMATION

This attachment is designed for use with 300,400 and 500-Series gear drive or hydrostatic tractors.

ASSEMBLE SNOWTHROWER

Remove all parts from shipping box.

Remove two bolts, lock washers and cross bar from frame (Fig. 1). Locate long spring and hook longest spring end into idler pulley bellcrank. Hook short spring end into frame bracket with bolt (Fig. 2).

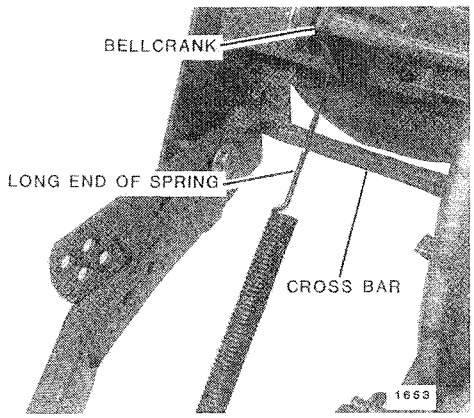


FIG. 1. Front Frame Cross Rod and Spring

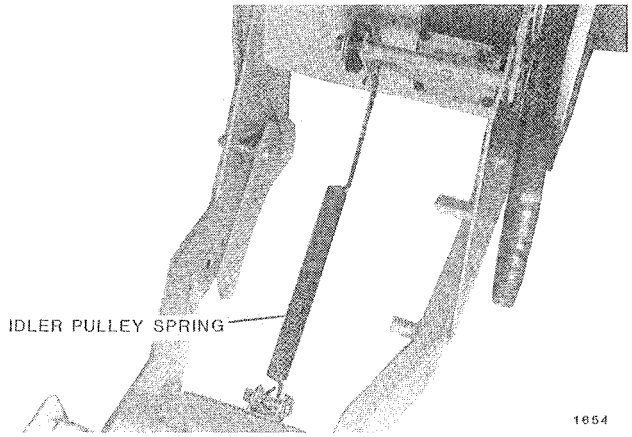


FIG. 2. Attach Idler Pulley Spring

Locate drive chain and rest chain on gear box sprocket (Fig. 3). Install frame assembly on wrapper assembly using removed cross bar, two bolts and lock washers and six 3/8-16 x 1 bolts and E.S. Nuts (Fig. 4).

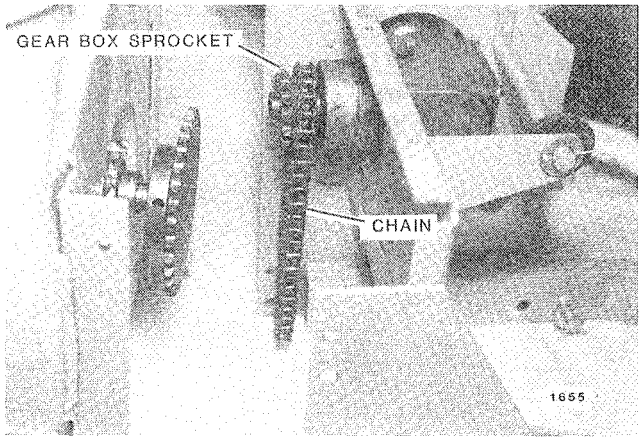


FIG. 3. Position Drive Chain

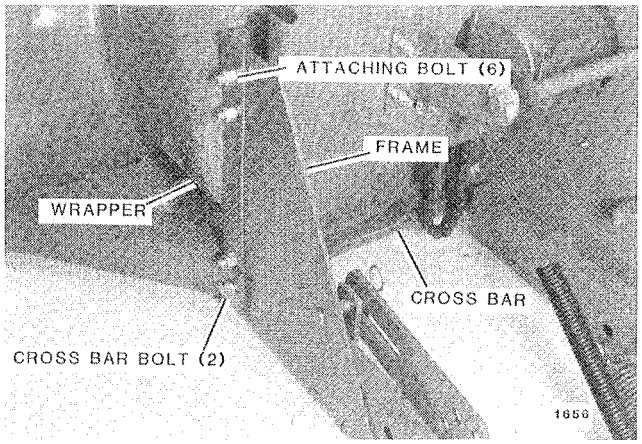


Fig. 4. Attach Frame to Wrapper

Install chain on sprockets (Fig. 5). Adjust wood block so that chain deflects 1/8-1/2 inch between sprockets.

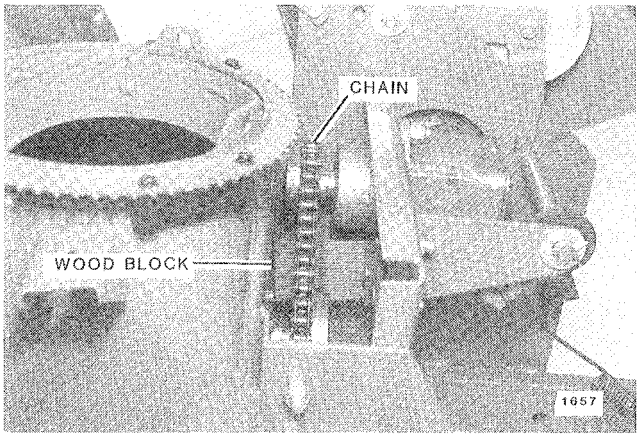


FIG. 5. Install and Adjust Drive Chain

Install cover using two 1/4-20 x 1/2 inch bolts (Fig. 6). Secure discharge chute to wrapper with three 5/16-18 x 3/4 carriage bolts, washers and E.S. nuts. Install discharge chute worm gear assembly on wrapper. Adjust worm gear so that chute turns freely.

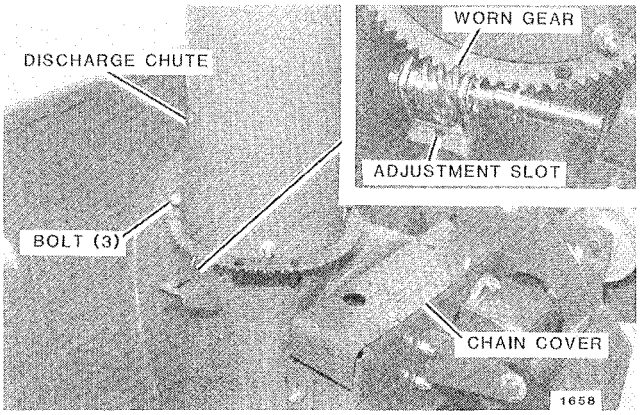


FIG. 6. Install Cover, Chute and Worm Gear

ATTACH SNOWTHROWER TO TRACTOR

Install drive belt guard bracket on tractor frame using two 3/8-16 x 1 bolts and E.S. nuts (Fig. 7).

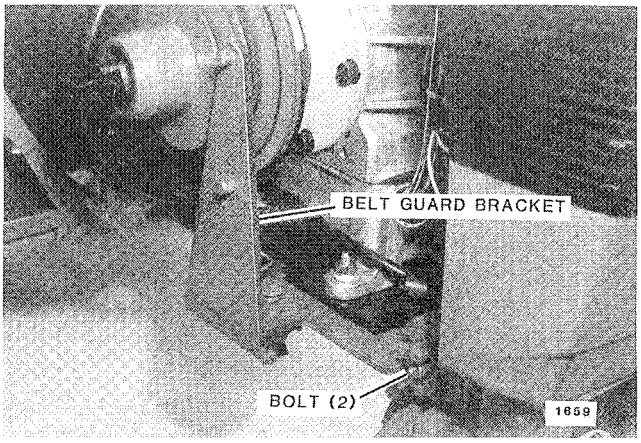


FIG. 7. Install Belt Guard Bracket

Install anti-sway bracket on belt guard bracket and secure with pin and hairpin cotter (Fig. 8). Make sure guide fits into front slot of belt guard.

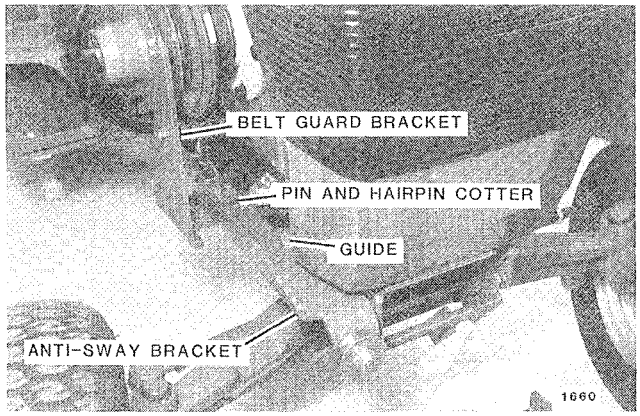


FIG. 8. Install Anti-Sway Bar

Open tractor mid-hitch and install snowthrower frame to tractor (Fig. 9).

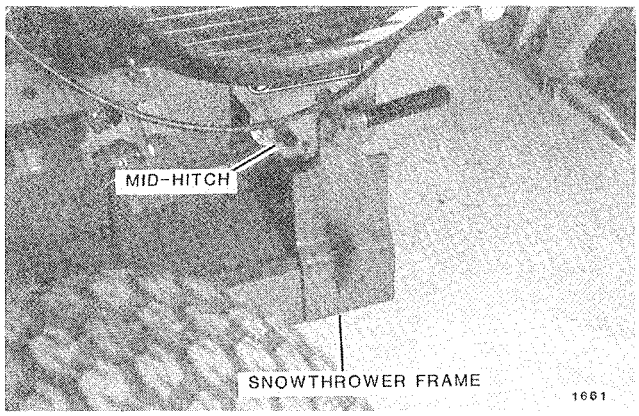


FIG. 9. Rear Snowthrower Mounting

Open tractor front hitch and install lift link to tractor (Fig. 10).

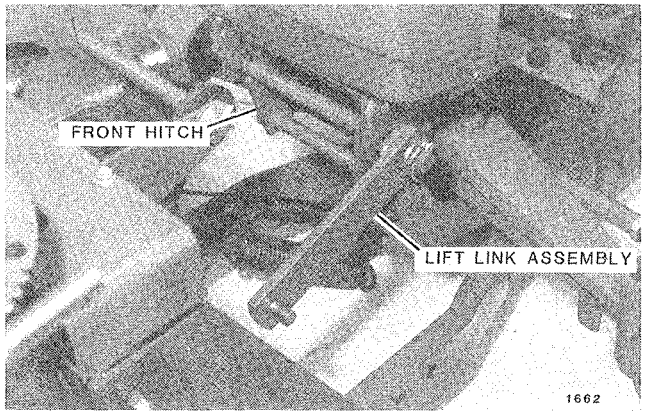


FIG. 10. Install Lift Link

Install front of lift rod into lift link and rear of lift rod into tractor lift arm using washers and hairpin cotters (Figs. 11 & 12).

Install lift link into rear bottom hole of snowthrower adjustment link and secure with hairpin cotter (Fig. 13). Install lift assist spring on lift rod and frame (Fig. 14).

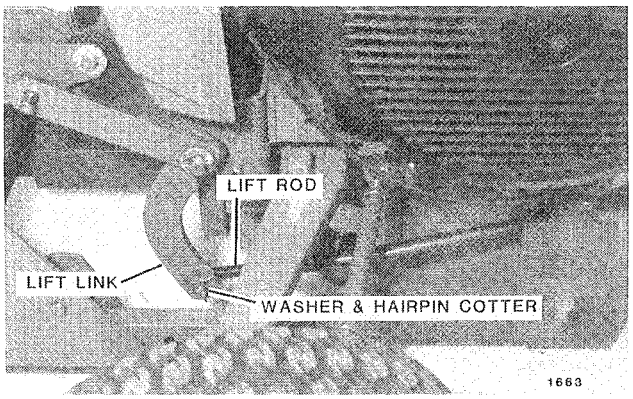


FIG. 11. Attach Front of Lift Arm

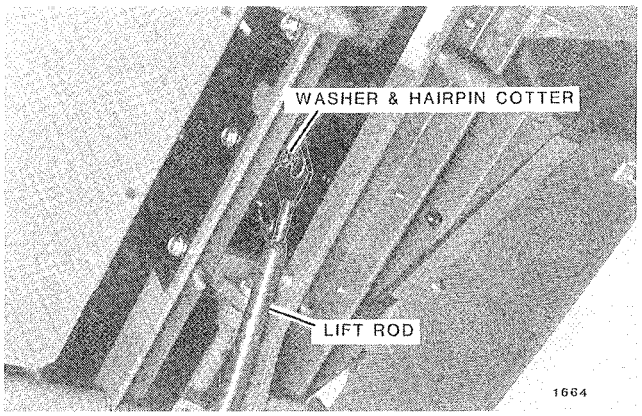


FIG. 12. Attach Rear of Lift Arm

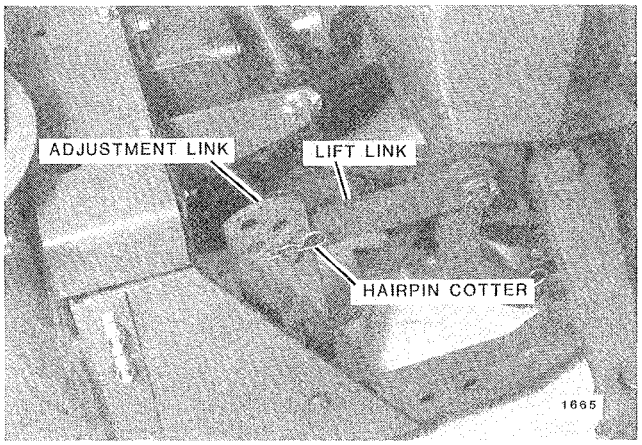


FIG. 13. Attach Lift Link to Snowthrower

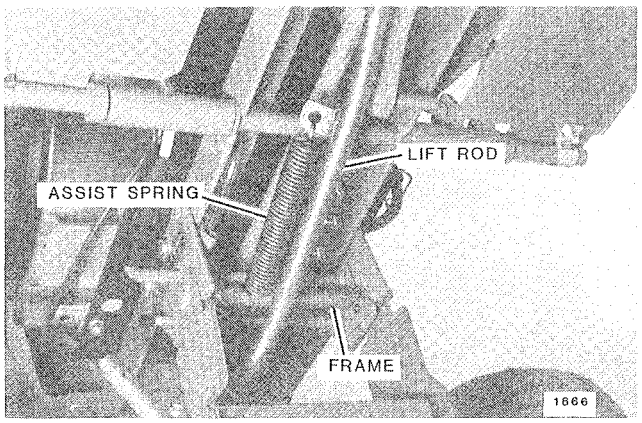


FIG. 14. Install Lift Assist Spring

MANDATORY STEP: Raise snowthrower all the way up with tractor lift. Move lift spring tensioning handle to rest against hood (Fig. 15.)

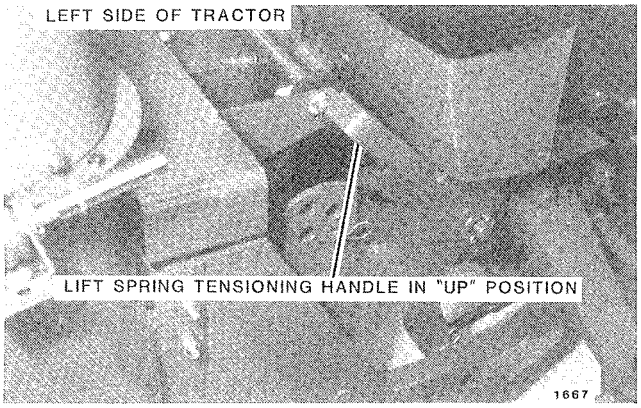


FIG. 15. MANDATORY - Handle in Up Position and Snowthrower Raised

Install lift spring on lift link and secure spring with retaining link and small hairpin cotter. Hairpin cotter must be positioned as shown in Figure 16.

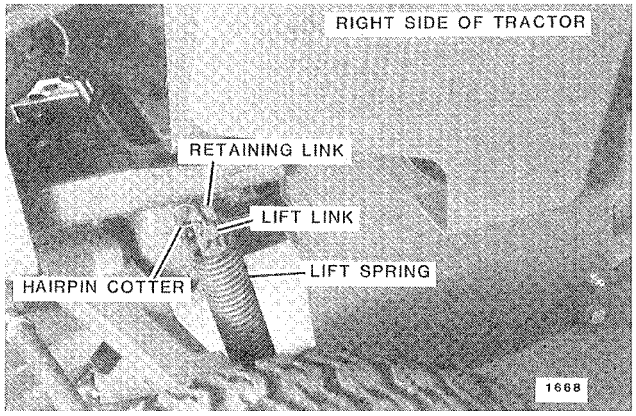


FIG. 16. Install Lift Spring

Move spring tension handle all the way down so that spring is over center and all the way toward rear of tractor (Fig. 17).

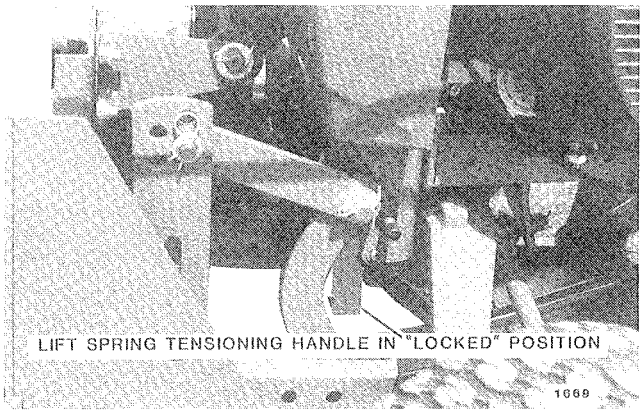


FIG. 17. Position Spring Tensioning Handle

Install drive belt on outside pulley of tractor PTO as described in tractor operator's manual (Fig. 18). Install belt guard using two flat washers and small hairpin cotters (Fig. 19).

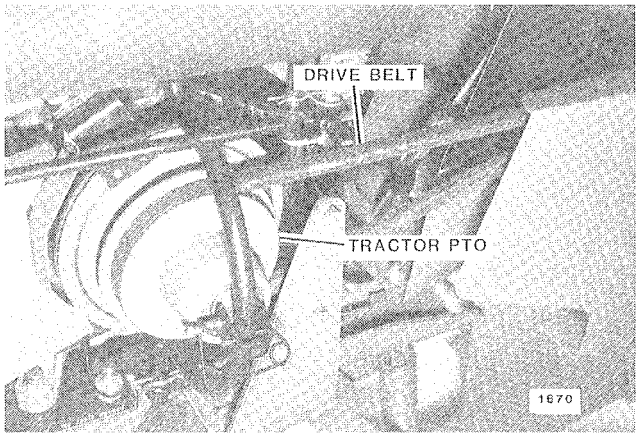


FIG. 18. Install Drive Belt

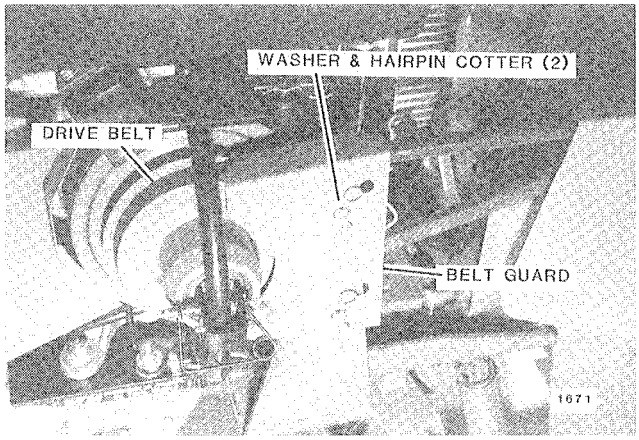


FIG. 19. Install Belt Guard

Install discharge chute crank support on snowthrower frame and secure with large hairpin cotter (Fig. 20). Insert crank threw hole in support, install crank on discharge chute worm and secure with small hairpin cotter (Fig. 21).

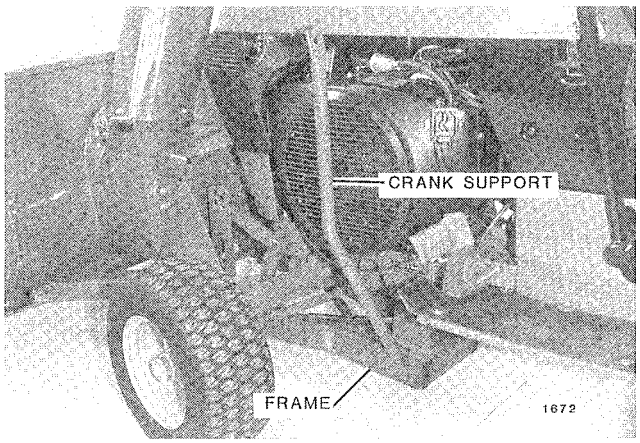


FIG. 20. Install Crank Support

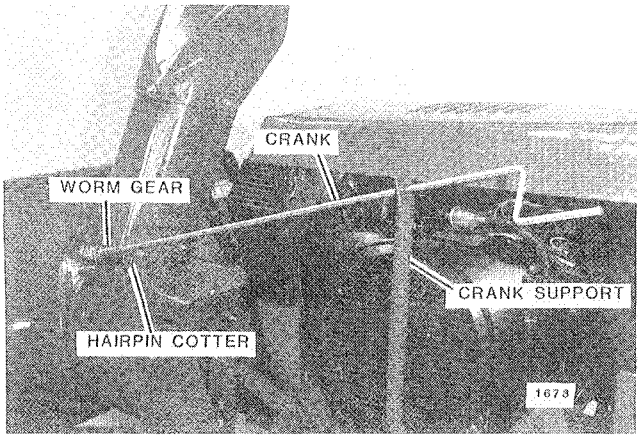


FIG. 21. Attach Crank To Discharge Chute

SNOWTHROWER REMOVAL AND INSTALLATION

After initial installation, snowthrower is removed and installed as follows:

REMOVAL

Remove discharge chute crank and support (Fig. 22).

MANDATORY STEP: Raise snowthrower all the way up with tractor lift and move lift spring tensioning handle to rest against hood (Fig. 23). **Note: Spring is under severe pressure when snowthrower is in lowered position.**

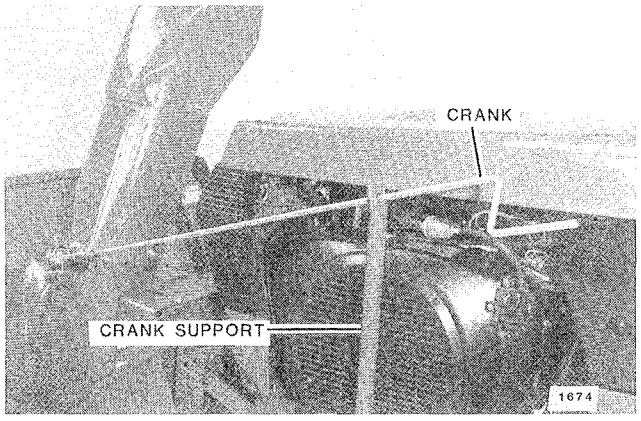


FIG. 22. Remove Crank and Support

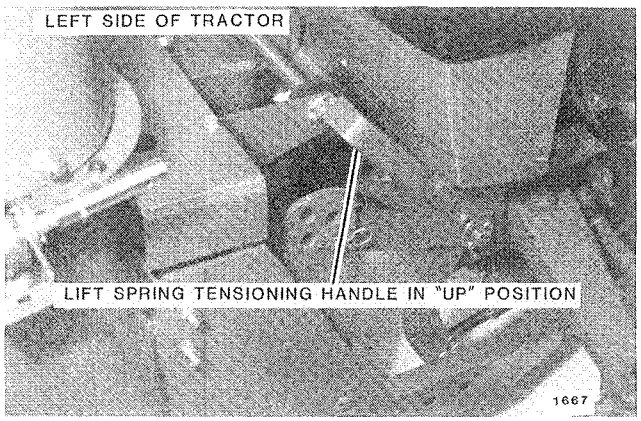


FIG. 23. MANDATORY - Handle in Up Position and Snowthrower Raised

Remove lift spring (Fig. 24). Lower snowthrower, remove lift rod from lift link and remove link from tractor front hitch (Fig. 25).

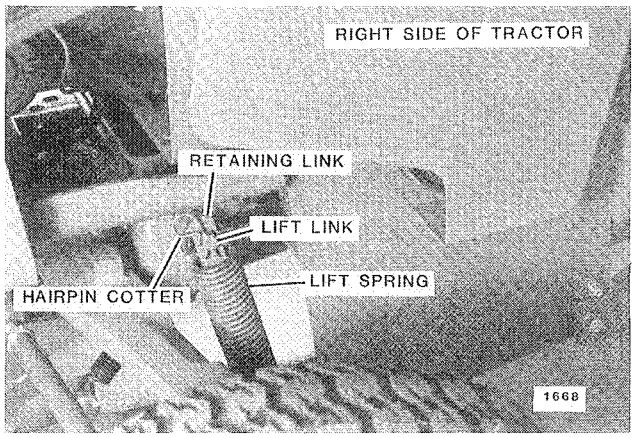


FIG. 24. Remove Spring

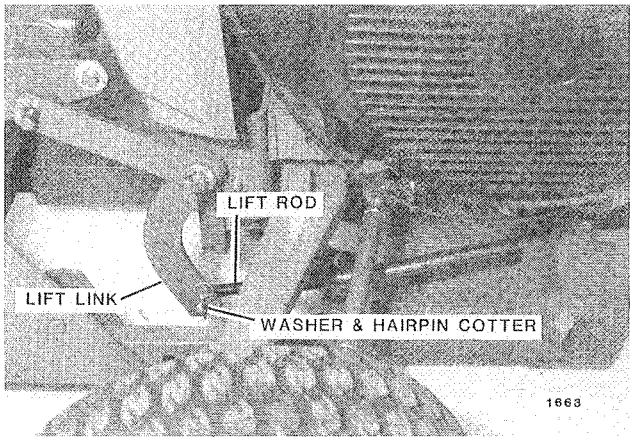


FIG. 25. Remove Lift Rod and Link

Remove Lift Rod and Spring from tractor (Fig. 26). Remove drive belt guard and drive belt (Fig. 27).

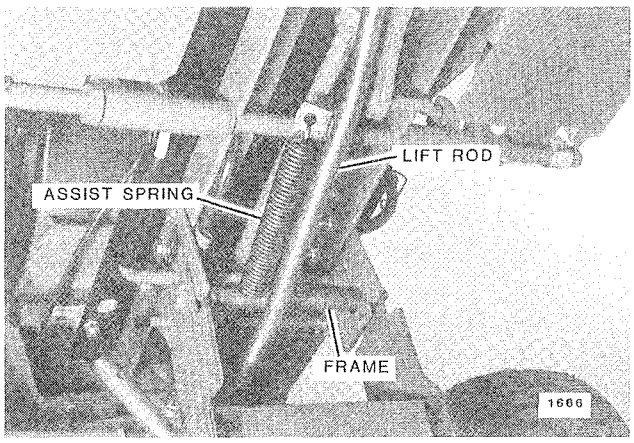


FIG. 26. Remove Rod and Spring

Remove snowthrower frame from tractor mid-hitch and back tractor away from snowthrower (Fig. 28).

Remove drive belt guard and anti-sway brackets from tractor (Fig. 29).

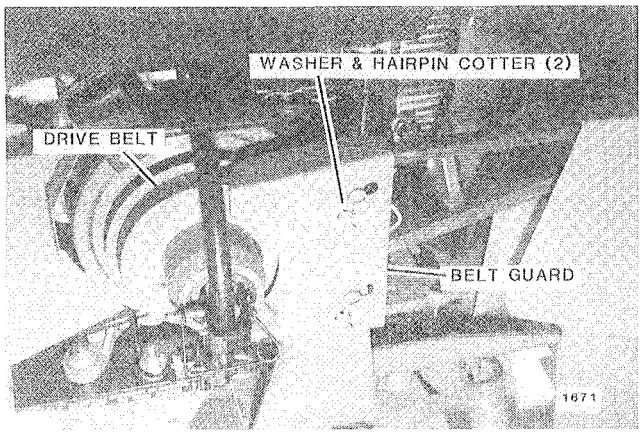


FIG. 27. Remove Drive Belt and Guard

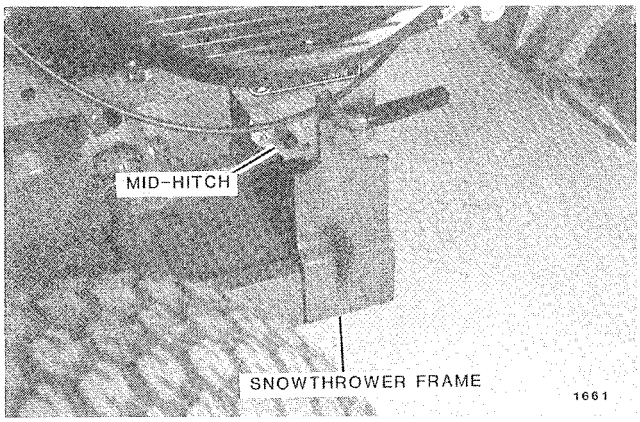


FIG. 28 Remove Frame From Trac tor

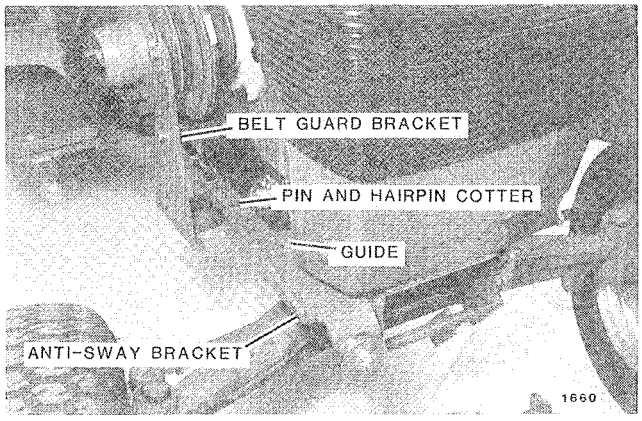


FIG. 29. Remove Brackets

INSTALLATION

Install snowthrower in reverse order as prescribed under "REMOVAL" procedure.

OPERATION AND ADJUSTMENT

⚠ CAUTION ⚠

To minimize the possibility of injury, become familiar with all safety suggestions at the front of this manual before placing the snowthrower into operation.

IMPORTANT

Each time snowthrower is installed, check for proper operation of PTO clutch and brake. Adjustment of PTO is covered in tractor Operator's Manual.

Use of rear wheel weights and tire chains is recommended for extra traction, particularly when heavy snow or icy conditions occur. These accessory items are available through your authorized Toro Wheel Horse dealer.

Direction snow is thrown is controlled by turning crank rod. Discharge chute will rotate through a 180 degree arc. Deflector on upper portion of discharge chute can be adjusted up and down to control height and distance snow is thrown.

Distance between auger and ground is regulated by skid shoes at each side of snowthrower housing (Fig. 30). Auger height should be adjusted so that scraper will not catch on uneven surfaces. When operating snowthrower over loose material, such as a gravel driveway, raise auger sufficiently to prevent picking up stones or other debris. To adjust auger height, raise snowthrower and loosen bolts securing skid shoes to side of snowthrower housing. Raise or lower skid shoes equally on both sides, to obtain level auger height.

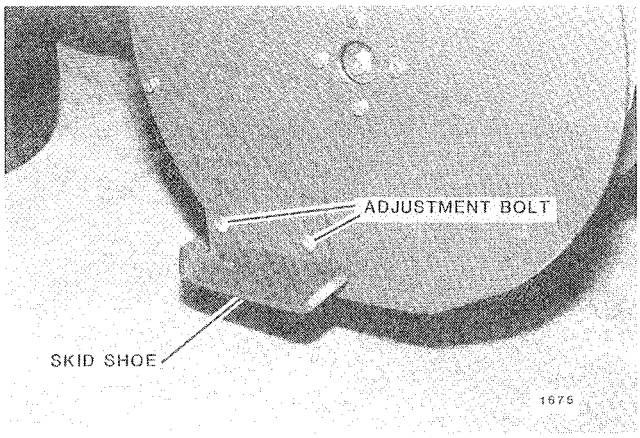


FIG. 30 Skid Shoe Adjustment

⚠ CAUTION ⚠

When making any adjustment to snowthrower, disengage PTO, shut off engine and remove ignition key. Make sure wire is installed in discharge chute (Fig. 31).

Snow removal conditions vary greatly. Depth of snow,wind direction, temperature and condition of area to be cleared are all factors which must be taken into consideration when throwing snow. Best results are obtained with high auger speed and slow forward movement. Therefore, operate tractor at full engine speed, using transmission to adjust ground speed to about 1 MPH (1.6 KPH).

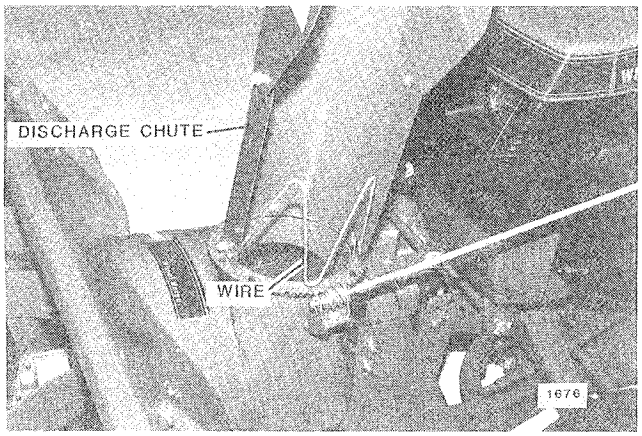


FIG. 31 Discharge Chute Wire

To begin snow removal, start tractor's engine and allow it to warm up. Lower snowthrower to ground using tractor's attachment lift, and then engage PTO.

⚠ CAUTION ⚠

Never permit anyone to stand in front of auger or discharge chute when tractor engine is running. Keep children and pets away from area when throwing snow. There may be objects in snow being thrown which could cause injury to anyone being struck by them.

A definite pattern of operating is required to thoroughly clean snow area. This will avoid a second removal of snow and throwing snow into unwanted places. Snow should be thrown downwind. However, where it is possible to throw snow to right and left, as on a long driveway, it is advantageous to start in middle and work progressively outward, throwing snow to both sides without changing position of discharge chute (Fig. 32).

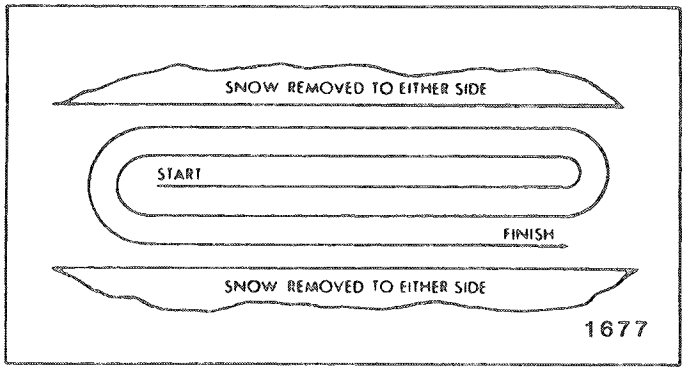


FIG. 32 Throwing Snow to Both Sides

If snow can only be thrown to one side, start on side farthest from where snow is to be thrown, rotating discharge chute 180 degrees at end of each pass.

Before starting tractor engine, make sure auger and impeller will rotate freely. This is especially important when unit has been in use and left standing in cold weather. Auger or impeller could be frozen in housing and, if PTO clutch is engaged under these conditions, clutch or belt or both could be damaged. Also check discharge chute to be sure it is free to turn.

For normal operations, snowthrower is used with unit resting on ground. Lift distance variation is shown in Figure 33.

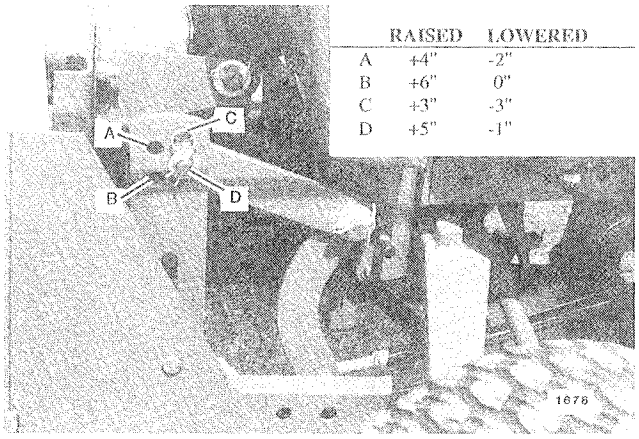


FIG. 33 Ground Clearance

In deep, drifted, or banked snow, it will be necessary to slowly drive auger into snow and then stop tractor to allow auger to clear snow. Repeat this method until a path is cleared. On second pass, overlap first path enough to allow snowthrower to operate without repeated stopping and starting of tractor.

In extremely deep snow, raise snowthrower from ground using tractor's attachment lift. Drive tractor ahead into deep snow, removing top layer first. Tractor itself should not enter snowbank. Reverse tractor and lower snowthrower to ground. Drive tractor ahead and repeat process to remove balance of snow. Working with repeated passes in and out of drifts will eventually move deep snow.

⚠ CAUTION ⚠

If snowthrower becomes plugged with snow or jammed due to hitting a foreign object, proceed as follows:

1. Declutch snowthrower and stop tractor engine immediately.
2. Disconnect spark plug wire(s).
3. Clear snow from discharge chute or impeller if plugged.
4. If auger or impeller is jammed, remove foreign object and repair any damage to snowthrower before continuing.
5. Reconnect spark plug wire(s).
6. Resume operation.

Snowthrower should not be used to remove ice or hard packed frozen snow, which can cause damage to unit. For best results, snow should be removed as soon as possible after it falls.

Before snow season begins, it is suggested that snow removal area be thoroughly inspected and cleared of all stones, sticks, etc. which might be picked up by auger. Mark location of all obstacles that could become hidden under snow and cause damage to auger or tractor if struck.

MAINTENANCE AND STORAGE

Before each use, check that all bolts, set screws and other fasteners are tight and in place. Drive chain tension can be adjusted by moving wood block so that chain deflects 1/8-1/2" between sprockets (Fig. 34). Reintall cover after adjustment.

Do not overtighten chain. A correctly adjusted chain will have a slight amount of slack. An overtightened chain will result in early failure of wood block.

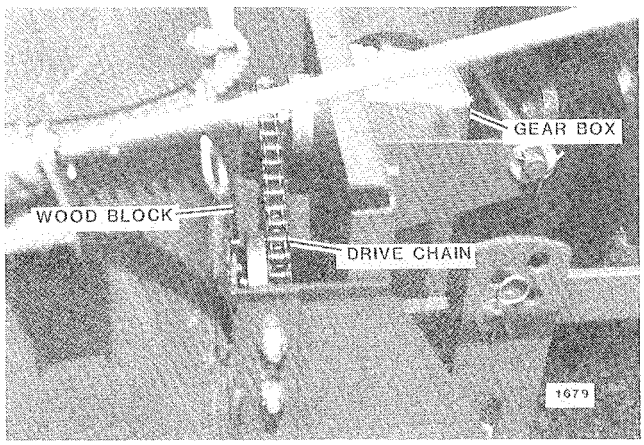


FIG. 34 Drive Chain Adjustment and Gear Box

Lubricate drive chain every 4 operating hours with SAE 10 or SAE 10W30 engine oil. Be sure oil penetrates inside each roller. Wipe off excess oil. Other moving parts of linkage should be lubricated with light engine oil. Grease impeller bearing at first 5 hrs. with #2 multi-purpose grease and thereafter every 50 hrs. or at end of each season (Fig. 35).

Auger and impeller are driven with gearboxes (Figs. 34 & 36). Gearboxes are filled with EP90 oil at factory. Oil changes on drive chain gearbox is not necessary except for major service or oil leaks. Oil should be changed in auger gearbox at first 5 hrs. and thereafter at 50 hrs.

A coat of wax applied to inside of auger housing will help prevent snow from sticking to it. Inside of discharge chute and deflector should also be waxed several times during snow removal season. Coat bare metal surfaces of snowthrower with oil or grease to prevent rust until permanent repairs can be made. Contact with corrosive road salt

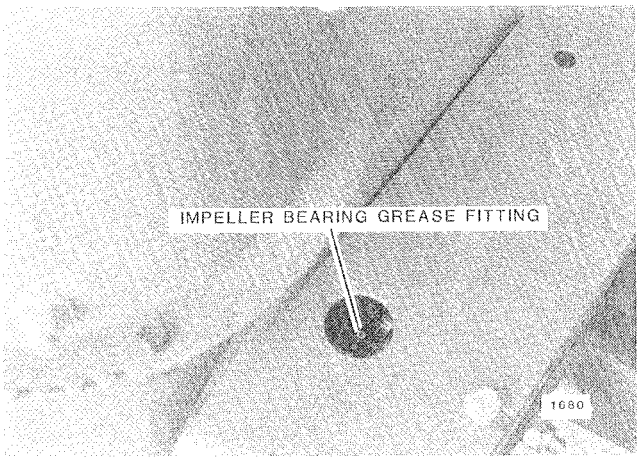


FIG. 35 Lubricate Impeller Bearing

should be avoided whenever possible.

To prevent damage to snowthrower housing, periodically inspect snowthrower scraper. When scraper becomes worn (before working surface comes in contact with housing) remove carriage bolts attaching scraper to housing and replace scraper (Fig. 36).

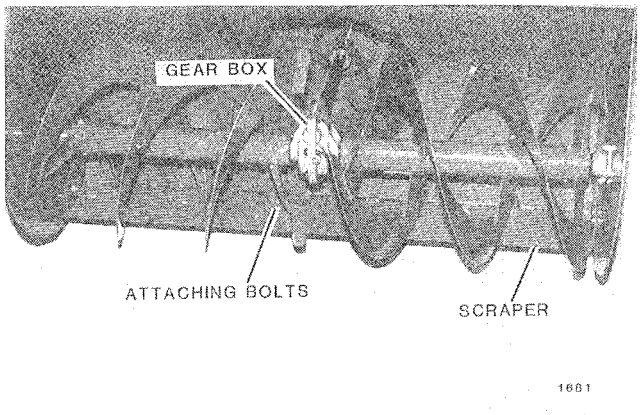


FIG. 36 Reversible scraper and Gear Box

Before storing snowthrower at end of season, thoroughly clean it by washing with a garden hose. A mild automotive type detergent may be used to remove stubborn dirt. Touch up damaged paint areas as necessary. Aerosol cans of "Toro Wheel Horse Red" touch up paint are available through your authorized dealer.

Auger and impeller should be coated with oil or treated with a rust preventative. Lubricate snowthrower as described in this section and store it in a clean, dry place. Protect it with a weather-proof cover if stored outdoors.

DRIVE BELT REPLACEMENT

Remove two belt guards (Fig. 37). Remove belt from PTO pulley as described in tractor's Operator's manual. Loosen rear belt idler pulley and remove belt (Fig. 38).

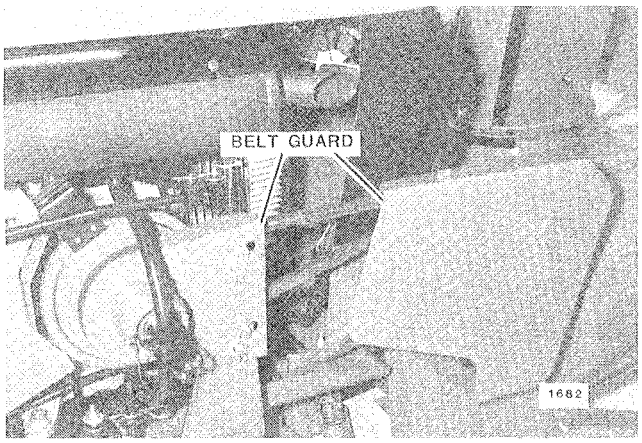


FIG. 37 Remove Belt Covers

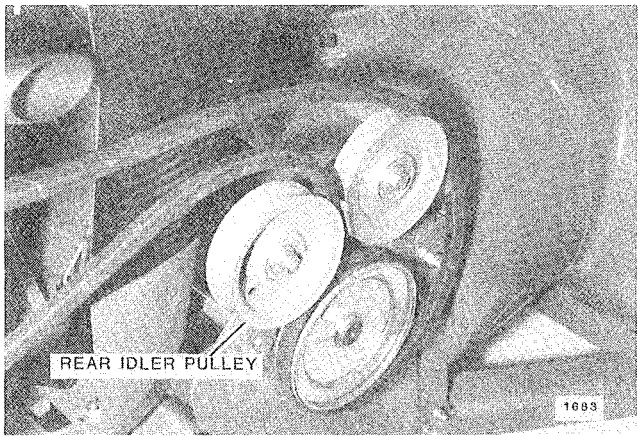


FIG. 38 Loosen Idler Pulley

Install new belt on pulleys and tighten rear idler pulley bolt (Fig. 39). Install belt on PTO and reinstall belt gurards.

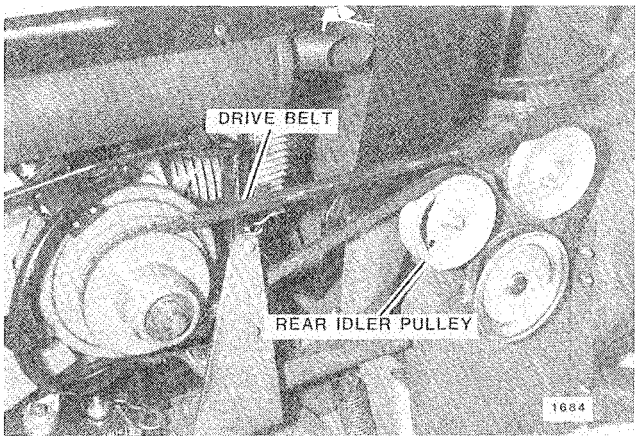


FIG. 39 Drive Belt Routing

A separate parts manual for your Toro Wheel Horse attachment can be obtained by completing the attached form below. You will receive an invoice with manual.

PUBLICATIONS
TORO WHEEL HORSE PRODUCTS, INC.
P.O. Box 2649
South Bend, Indiana 46680

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