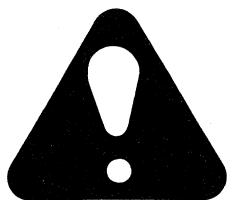
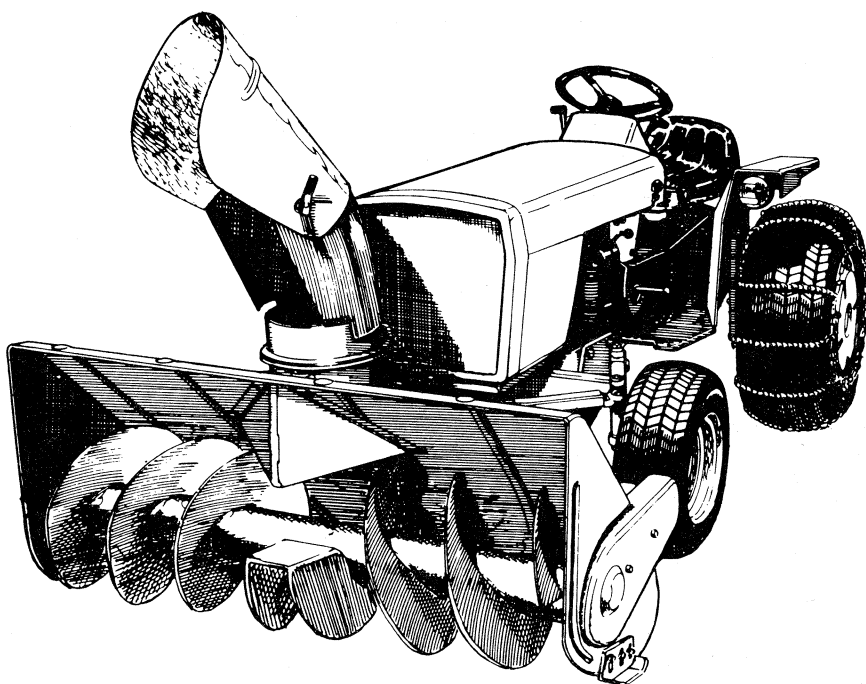


OPERATOR'S MANUAL

52" SNOW THROWER



**CAUTION: Read Manual Thoroughly
Before Operating**

52" SNOW THROWER
MFG. NO. 1600225

FORM - 71652009
PRINTED IN U.S.A.
7612

Dear Customer,

Congratulations on your purchase of this snow thrower. It has been carefully designed and built to give you years of dependable service. With proper care, it will help you do your snow removal jobs efficiently.

To make sure you get the best use from your snow thrower, study this manual carefully. Make sure that it is assembled and installed properly, and that all adjustments are done correctly. Be sure that you (and anyone who operates this machine) know how to use the machine safely. Read this manual and the tractor manual thoroughly and become familiar with the controls of the machine before operating.

For your own safety as well as others, study the safety rules in this manual and those in the tractor manual. Review this information often. It is there for your benefit and is important.

This manual tells how to assemble, install, service, operate and adjust your snow thrower. If any help is needed with any of these procedures, your dealer will be happy to help you.

Measurements are given in this manual with metric equivalents in parentheses. For example, behind the measurement 1/8 inch would appear: (3 mm). So, the metric equivalent of 1/8 inch is 3 millimetres.

These metric measurements are provided for your convenience as an aid in converting to the metric system. A list of metric terms and abbreviations used in this manual is provided below.

LIST OF ABBREVIATIONS OF METRIC TERMS

1. mm = millimetre
2. kg = kilogram
3. km/h = kilometres per hour
4. m = metres
5. N·m = newton-metre

52 Inch Snow Thrower

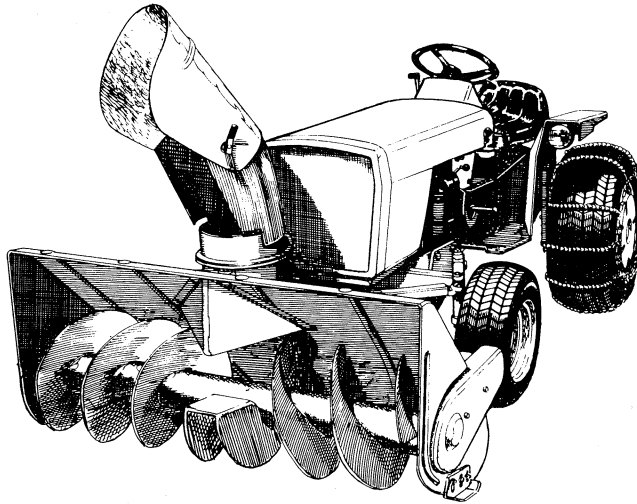


Table of Contents

SAFETY RULES	2
IDENTIFICATION	4
ACCESSORIES AND ATTACHMENTS	4
SPECIFICATIONS	5
INSTALLATION	6
OPERATION	10
NORMAL CARE	13
MAINTENANCE RECORD	16
TROUBLESHOOTING	17
ADJUSTMENTS	18
ASSEMBLY	19



WARNING

Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of vehicle, severe personal injury to yourself or bystanders, or damage to property or equipment affecting safety.

Safety Rules



This notation preceding Cautions and Warnings in the text signifies important precautionary steps which, if not properly followed, could result in personal injury or damage to your equipment affecting safety.

General

- Read the operator's manual carefully. Be thoroughly familiar with the controls and proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
- Never allow children to operate equipment. Never allow adults to operate equipment without proper instruction.
- Use only attachments or accessories designed for your machine. See your dealer for a complete list of approved attachments or accessories.
- Keep the area of operation clear of all persons, especially small children, and pets.
- Exercise caution to avoid slipping or falling.

Preparation

- Never attempt to make any adjustments while engine is running.
- Thoroughly inspect the area where the snow thrower is to be used and remove all door mats, sleds, boards, wires and other foreign objects.
- Disengage all clutches and shift into neutral before starting engine.
- Do not operate snow thrower without wearing adequate winter outer garments. Wear footwear which will improve footing on slippery surfaces.
- Handle gasoline with care, it is highly flammable.
- a. Use approved fuel container.
- b. Never add fuel to a running engine or hot engine.
- c. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
- d. Replace gasoline cap securely and wipe up spilled fuel.
- Adjust skid shoe height to clear gravel or crushed rock surface.
- Let engine and machine adjust to outdoor temperatures before starting to clear snow.

Operation

- Do not put hands or feet near rotating parts. Keep clear of discharge opening at all times.
- Exercise extreme caution when operating on or crossing a gravel drive, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
- After striking a foreign object, stop the engine, disengage PTO and remove ignition key. Thoroughly inspect the snow thrower for any damage before restarting and operating the snow thrower.
- Do not run engine indoors, except when starting engine for transporting snow thrower in or out of building. Open outside doors, exhaust fumes are deadly.
- Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
- Never operate snow thrower without guards, plates, or other safety protective devices in place.

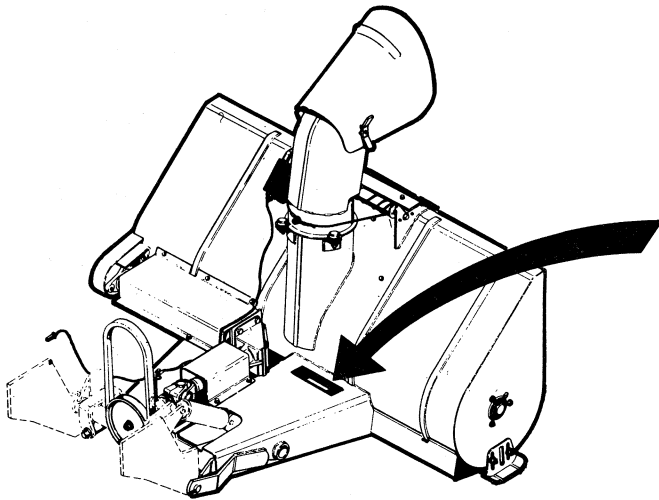
- Be especially careful not to touch tractor or attachment parts which might be hot from operation. Allow such parts to cool before attempting to maintain, adjust or service.
- If the unit should start to vibrate abnormally, stop the engine, disengage PTO, remove ignition key, and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop engine, disengage PTO, and remove ignition key whenever you leave the operating position, before unclogging the snow thrower housing or chute, and before making any repairs, adjustments, or inspections.
- Take all possible precautions when leaving the vehicle unattended. Disengage the power take-off, lower the attachment, shift into neutral, set the parking brake, stop the engine, and remove the key.
- When cleaning, repairing, or inspecting, make certain snow thrower and all moving parts have stopped. Remove ignition key to prevent accidental starting.
- Never operate snow thrower near glass enclosures, automobiles, window wells, drop offs, etc., without proper adjustment of snow discharge angle. Keep children and pets away.
- Do not overload machine capacity by attempting to clear snow at too fast a rate.
- Never operate machine at high transport speeds on slippery surfaces. Use care when backing.
- Never direct discharge at bystanders or allow anyone in front of unit.
- Disengage power to snow thrower when transporting or not in use.
- Use only attachments and accessories approved by manufacturer of snow thrower (such as wheel weights, chains, etc.).
- Never operate the snow thrower without good visibility or light. Always be sure your feet are properly placed on the footrests and keep a firm hold on the steering wheel.

Maintenance and Storage

- Check bolts, engine mounting bolts, etc. at frequent intervals for proper tightness to be sure equipment is in safe working condition.
- Never store machine with fuel in the fuel tank inside a building where open flame or sparks are present. Allow engine to cool before storing in any enclosure.
- Always refer to operator's manual for important details if snow thrower is to be stored for an extended period.
- Run machine a few minutes after throwing snow to clear out snow to prevent freeze up of snow thrower.

Identification

When ordering replacement parts for your snow thrower, be prepared to give your dealer the identification number found on the identification plate shown below. We suggest that you locate the identification plate on the main frame behind the spout and record identification number here for easy reference.



**Refer to i.d. no. when
writing or ordering parts.**
I.D. No.

Accessories and Attachments

There are many optional accessories or attachments available for your tractor and snow thrower. See your dealer if you wish to purchase any of the following:

CHAINS — supply added traction needed in snow.

CAB — shelters operator from cold and blowing snow.

REAR LIGHT KIT — illuminates work area for rear mounted attachments.

HOURLY METER — records engine operating time to tenths of an hour.

HYDRAULIC CYLINDER KIT — required to raise and lower snow thrower.

HITCH FOR FRONT MOUNTED ATTACHMENTS — required for all front mounted attachments.

REAR WHEEL WEIGHTS — improve traction.

Specifications

DIMENSIONS	Effective Width	52 Inches (1.3 m)
	Overall Length With Tractor	114 Inches (2.9 m)
	Overall Width With Skid Shoes	55 Inches (1.4 m)
	Auger Diameter	14 Inches (355.6 mm)
	Auger Housing Opening Height	24-1/2 Inches (622.3 mm)
	Height of Scraper Bar to Ground	
	Fully Raised	10 Inches (254.0 mm)
	Chute Diameter	9-1/2 Inches (241.3 mm)
	Chute Rotation Angle	260 Degrees
	Approximate Weight	374 Pounds (170 kg)
CONTROLS	Spout Rotation	Toggle Switch on Tractor Dash.
	Auger Drive	Toggle Switch on Tractor Dash.
	Raise and Lower	Tractor Power Lift Control.
AUGER DRIVE	Type	Single Stage.
	Power Source	Tractor Front PTO.
	Clutch	Tractor Front PTO Electromagnetically Controlled Friction.
	Vertical Drive	Cushioning Single Plane V-Belt to Jack Shaft.
	Forward Drive	Needle Bearing Universal Joint Splined Drive Shaft to Bevel Gear Housing.
	Cross Drive	Disc Type Universal Joint Drive Shaft.
	Final Drive	Roller Chain With Sprockets.
CHASSIS	Chute Rotation	Geared Reversible Electric Motor.
	Chute Mounting	Guiding Ball Bearing Rollers.
	Front Support	Adjustable Large Area Hardened Skid Shoes.
	Rear Mounting	Hitch Bolted to Tractor Frame. Thrower Attaches to Hitch With Pins and Spring Clips.
	Scraper Bar	Full Width High Carbon Steel.
	Frame and Auger Housing	Welded Steel Assembly.
	Auger	Solid Flite Welded Steel.
	Auger Bearings	Self-Aligning Sealed Ball Bearings With Grease Fittings.

Specifications Subject to Change Without Notice.

Installation

CONTENT OF SECTION

This section tells you how to install the snow thrower on the tractor. Procedures are also included for snow thrower removal.

REQUIRED ACCESSORIES

A hitch for front mounted attachments and a front hydraulic cylinder are required to install the snow thrower on the tractor. If your tractor is presently equipped with a rear cylinder, it can be moved from the rear to the front. However, if the rear cylinder is not equipped with quick-disconnect couplings, you will need special fittings. See your dealer, if you wish to purchase any of these items.

INSTALLATION

Before the snow thrower can be installed on your tractor it must be assembled. In addition, certain other items must be installed on the tractor before installation can be started. Procedures for assembly of these items are provided in the Assembly section of this manual. To install the assembled snow thrower, proceed step-by-step as follows:

1. Install front hitch assembly (item A, figure 1) with capscrews and lockwashers (item B). Turn front wheels to the left to install upper right hand capscrews. Securely tighten capscrews on both sides of tractor frame. If the snow thrower drive assembly (item A, figure 2) is already installed, it need not be removed.

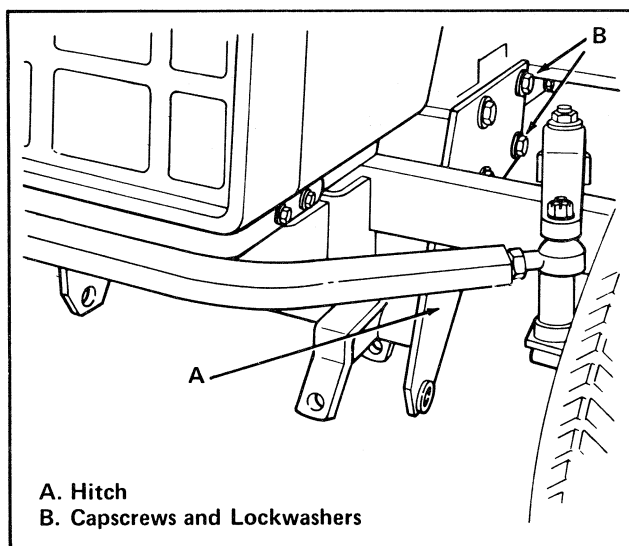


Figure 1. Install Front Hitch

2. If the snow thrower drive assembly (item A) is not installed on the hitch assembly, install it at this time. Attach drive assembly using pin (item B) and cotter pin and flat washers (item C). The pin should be lubricated with grease before installation.

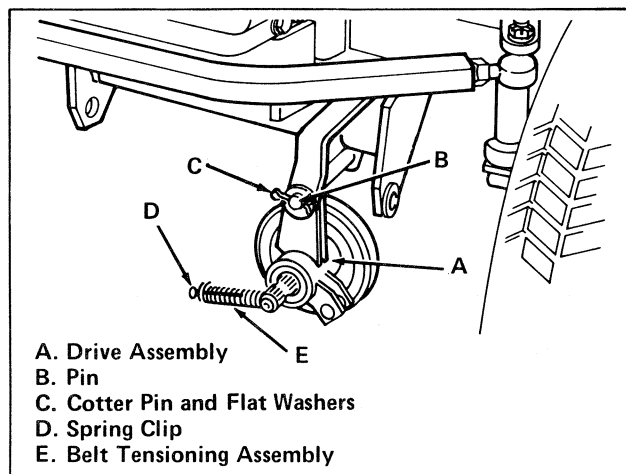


Figure 2. Snow Thrower Drive Assembly

3. Place drive belt (item A, figure 3) around pulley (item B). Remove spring clip (item D, figure 2) from the belt tensioning assembly (item E). Install belt tensioning assembly (item C, figure 3.) through the hole in bracket (item D).
4. Install spring clip removed earlier (item D, figure 2) through the hole in tensioning assembly (item C, figure 3) above (bracket item D).

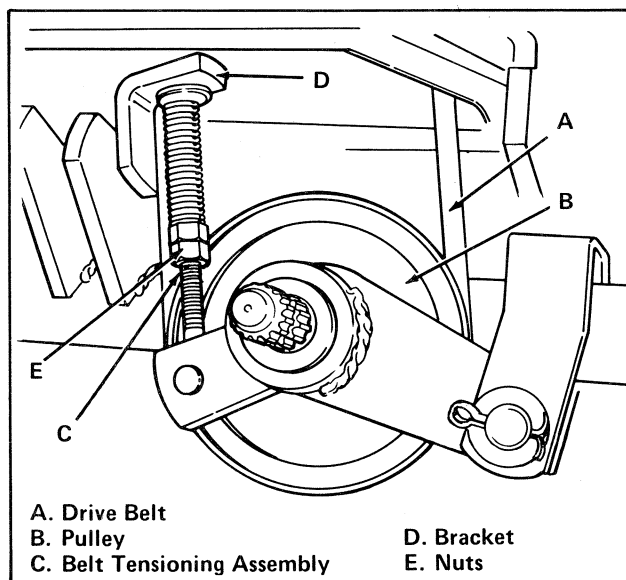


Figure 3. Belt Tensioning Assembly

5. Raise the tractor hood and install drive belt (item A, figure 4) over the PTO pulley. It may be necessary to loosen the belt tightening assembly by turning two nuts (item E, figure 3).

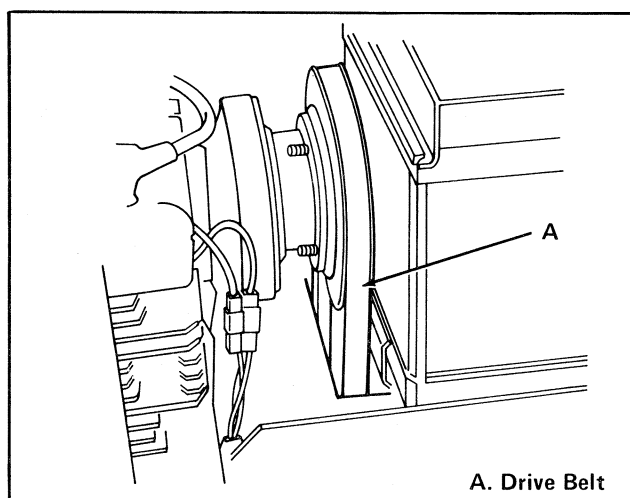


Figure 4. Install Drive Belt

6. After the drive belt has been installed over the engine PTO pulley, it will be necessary to check belt tension. See Adjustments section of this manual.
7. Attach hydraulic cylinder (item A, figure 5) on snow thrower. Install rod end (item B) of hydraulic cylinder to snow thrower frame with pin and spring clips (item C), with hoses on the bottom.

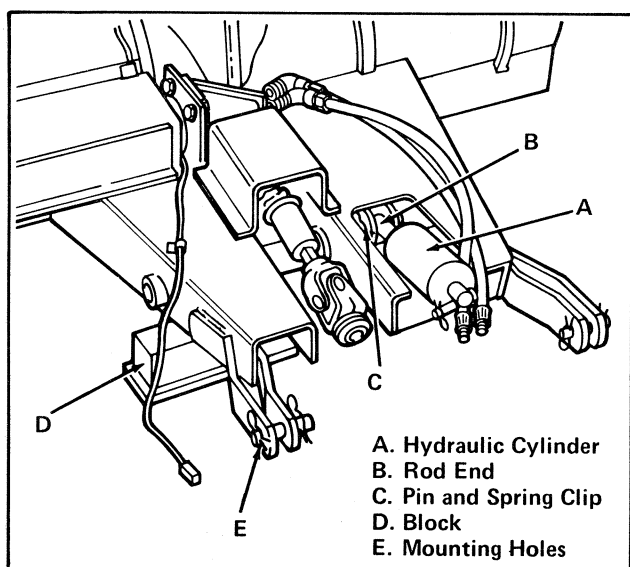


Figure 5. Prepare Snow Thrower for Mounting

8. Position snow thrower on level surface and block (item D) up rear of frame until frame mounting holes (item E) are same height as the front tractor hitch holes.
9. Carefully drive tractor forward toward snow thrower until mounting holes in snow thrower and front hitch are in line.

WARNING

Place transmission in neutral, lock parking brakes, disengage PTO clutch, stop engine and remove key.

10. Install two pins (item A, figure 6) and spring clips to secure snow thrower to hitch.
11. Clean all paint or dirt from drive shaft (item B) and splines in universal joint (item C). Coat shaft and telescoping portion of shaft with light engine oil.
12. Slide locking sleeve on universal joint forward toward snow thrower and slide joint onto drive shaft. Release locking ring. Check and be sure universal joint is firmly locked onto shaft.

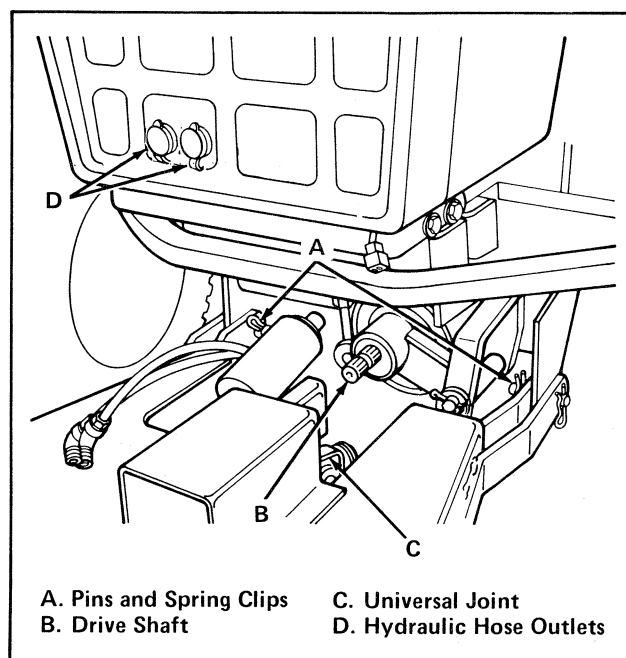


Figure 6. Attaching Pins and Drive Shaft

⚠ WARNING

Do not attempt to attach hydraulic cylinder to front hitch assembly while the engine is running.

13. Pull out two plastic covers from tractor hydraulic hose outlets (item D). Push covers to one side. With a clean cloth wipe all oil, and dirt off of outlets and hydraulic hose couplings.
14. Connect hydraulic hoses to couplings. Connect hose from free end of cylinder to right coupling (item A, figure 7). To make connection, push outer collar of coupling toward engine and insert fitting at end of hose to coupling. Then release collar and pull to be sure connection is locked. Connect left coupling (item B).
15. Place tractor hydraulic control lever in FLOAT position. With the engine stopped, lift piston end of cylinder mounting plates on front hitch assembly. Lengthen or shorten cylinder rod by hand to align holes. Install pin and spring clip (item C).

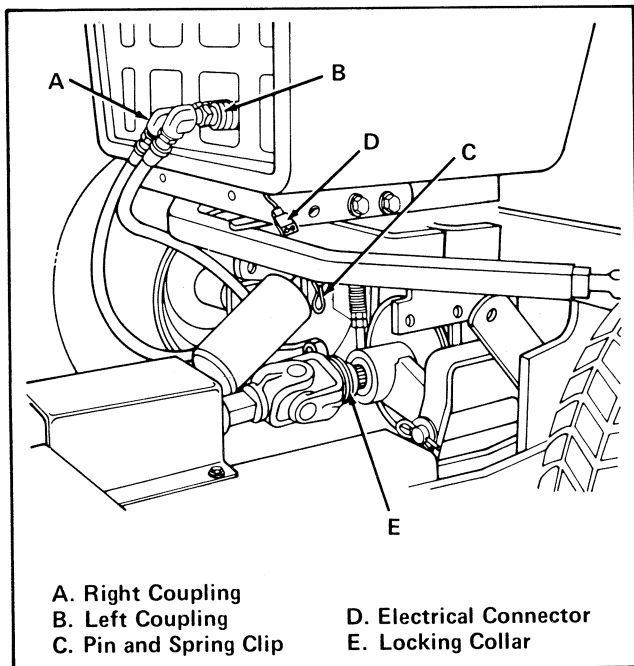


Figure 7. Completing Installation

NOTE

If hydraulic fluid in cylinder and tractor is very cold it may be difficult to lengthen or shorten the cylinder rod. Start up the tractor and actuate the cylinder with tractor control lever until the fluid is warm. Turn off tractor and install cylinder.

16. Attach snow thrower electrical connector (item D) to tractor. Be sure connection is secure.
17. Start tractor to raise and lower snow thrower several times. Check for proper operation. Use electric switch to check spout operation. Engage and disengage front PTO.

REMOVING SNOW THROWER FROM TRACTOR

⚠ WARNING

Before attempting to remove snow thrower, be sure that the tractor engine is off, parking brake set, and ignition key is removed.

1. Position tractor and snow thrower on level surface.
2. Place tractor hydraulic control lever to FLOAT position.
3. Disconnect electrical wiring connector (item D, figure 7) and store it on the tractor (item A, figure 8).

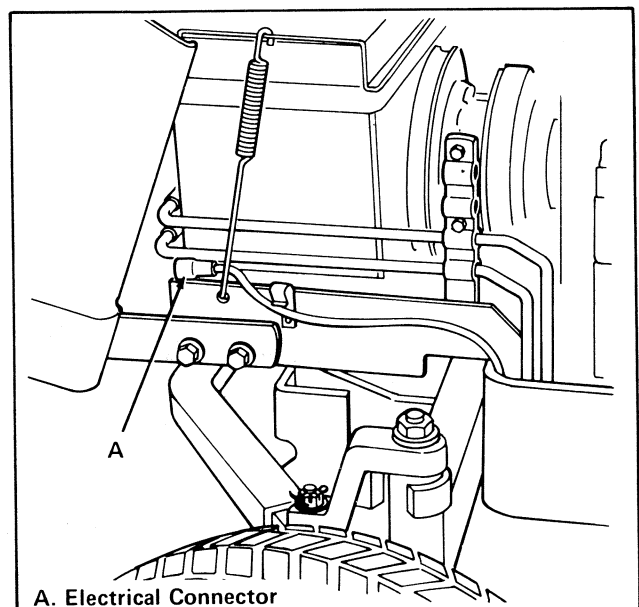


Figure 8. Store Electrical Connector

4. Pull the locking collar (item E, figure 7) forward toward the snow thrower to release the drive shaft lock. Then pull forward on universal joint (item C, figure 6) to remove it from drive shaft (item B).
5. Remove spring clip and pin (item C, figure 7) to detach hydraulic cylinder from hitch assembly.
6. Disconnect hydraulic hose couplings from tractor outlets (item A and B, figure 7). Replace plastic covers on both outlets.
7. Place block (item D, figure 5) under frame of snow thrower.
8. Remove spring clips and mounting pins (item A, figure 6) to disconnect snow thrower from hitch assembly.
9. Start engine and carefully back tractor away from the snow thrower.
10. If desired to remove front drive assemblies, loosen two belt tension adjusting nuts (item E, figure 3) to release tension on drive belt.
11. Remove drive belt (item A, figure 4) from the engine PTO pulley.
12. Remove drive assembly (item A, figure 2) from the hitch assembly by removing cotter pin and pin.
13. If desired, remove eight capscrews (item B, figure 1) to remove tractor hitch.

Operation

CONTENT OF SECTION

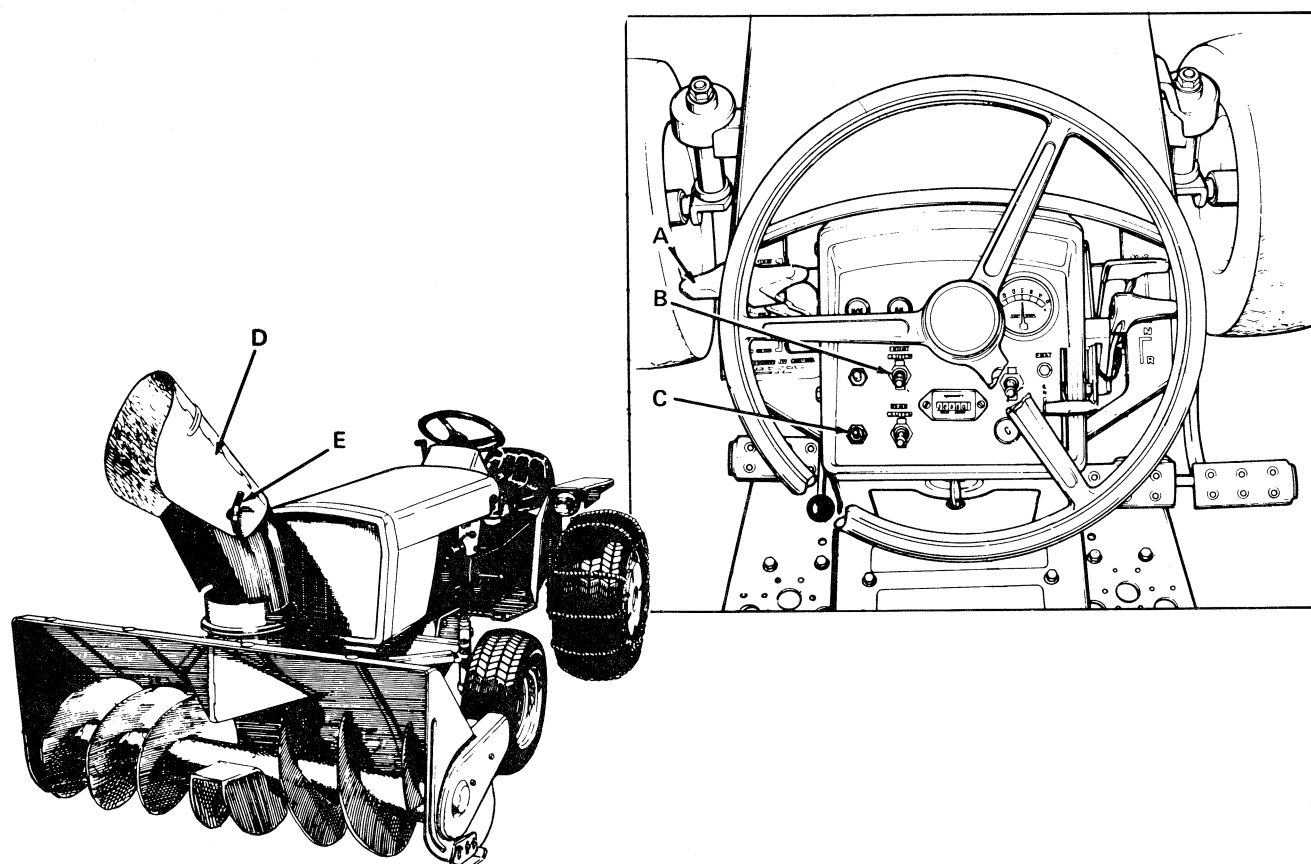
A brief description of the snow thrower controls, followed by the basic operating procedures, is given in this section to help you get to know your snow thrower and how to operate it safely and efficiently.

SNOW THROWER CONTROLS

Figure 9 shows the locations, names and functions of the snow thrower controls. The control names given in figure 9 are used throughout the manual.

OPERATING PROCEDURES

The rest of this section tells you how to operate your snow thrower. The directions assume that both the snow thrower and tractor work properly. If not, refer to the troubleshooting sections of this manual and the tractor manual.



Item	Name	Function
A	Front Lift Control	Operates front hydraulic lift cylinder when latter is installed on tractor. Used to raise and lower snow thrower.
B	FRONT CLUTCH Switch	Operates electrically controlled clutch for front PTO (power take off). Used to turn snow thrower on and off.
C	Spout Control Switch	Controls electric motor that rotates spout. Used to change direction snow is thrown.
D	Deflector	Used to control height and distance snow is thrown.
E	Wing Nut	Holds deflector at desired position.

Figure 9. Locations and Functions of Controls

WARNING

Before attempting to inspect, adjust, or service the snow thrower make sure the PTO switch is disengaged, the engine stopped, the key removed and the snow thrower auger has stopped turning.

CHECKS BEFORE STARTING

The checks listed below should be performed before each use of the snow thrower.

1. Read this manual. Read the tractor operator's manual. Be sure you know safety precautions and locations and uses of operating controls.
2. Check the snow thrower. Be sure that it is properly assembled and installed on tractor. Be sure that all safety guards are in place and that all nuts and bolts are tight. Also clear the auger of any ice or snow.
3. Refer to Normal Care section of this manual to determine and perform any needed care for the snow thrower. Do the same for the tractor.
4. Clean the area you intend to work in to be sure that it is clear of all items that may be caught in or thrown by the snow thrower.

RAISING AND LOWERING THE SNOW THROWER

To prevent damage, always raise the snow thrower before turning or backing the tractor. Use the hydraulic lift lever on the tractor to raise or lower the snow thrower. Before raising the snow thrower to the transport position, disengage the front PTO.

OPERATION ON SLOPES

For your personal safety, never attempt to operate the snow thrower on excessively steep slopes. Always operate the snow thrower up and down the face of slopes, and never across the face. Use rear wheel weights when operating on slopes greater than 20 percent (11.3 degrees). Never operate on slopes greater than 35 percent (19.3 degrees).

Also, for better stability and traction, it is recommended that tire chains be used on slopes and whenever else desirable. Use slow tractor ground speeds for slopes. See your tractor Operator's Manual for recommended speed and accessories when operating with attachments.

OPERATING THE SNOW THROWER

Because both the operating power and forward motion are supplied by the tractor, tractor operation is the main element of snow thrower operation. A general procedure for tractor operation with attachments is given in the tractor manual. However, seven additional items must be considered when removing snow. These items are described in the paragraphs that follow. Read all of these paragraphs before using the snow thrower.

Removal Height

Adjust the skid shoes as detailed in the Adjustment section to fit the surface being cleared. On occasion, additional adjustment can be made by raising the snow thrower slightly using the tractor lift.

Engine Speed

Set the tractor engine control for 2/3 to full speed for normal snow throwing. Full speed is best when throwing wet, heavy snow. Use the slower speeds to adjust the throwing distance during operation and when throwing light, fluffy snow.

Tractor Speed

The tractor speed will depend upon the type and amount of snow that must be cleared. For most conditions, 2 to 3 mph (3.2 to 4.8 km/h) is a good starting speed.

Refer to your tractor manual, and set the transmission gear shift or control lever accordingly. As the snow gets heavier or wetter, you will want to increase engine speed and decrease tractor speed.

Removal Patterns

Determine the best snow removal pattern before you start. Consider the size and shape of the area to be cleared. The wind direction and the location of buildings, etc. are also important.

Usually, it is best to drive back and forth the long direction of the area. By making fewer turns, you can get the job done faster. However, you can also back the tractor up after each pass. This method works especially well with the hydrostatic transmission.

Wind direction and the location of obstructions both affect the snow throwing direction. Plan your pattern so that you will always be throwing the snow down wind and not over areas that were previously cleared. If possible, begin on the upwind side and throw the snow toward the side that is directly opposite.

Throwing Direction

To change the direction of the snow stream from the spout, simply push the spout control switch (item C, figure 9). The spout will automatically stop turning when the switch is released. Always keep the spout turned to throw the snow down wind and not into it. Also be sure that the spout is turned so that neither you nor bystanders are in the path of the snow stream.

Throwing Distance

Normally, you will want to throw the snow beyond the area you are trying to clear. Yet, you will not want to throw it so far that it hits buildings. To stay within such limits, it is necessary to adjust the throwing distance.

WARNING

Always stop the engine before working near or on the auger or spout. Never insert your hand into the auger or spout.

When you begin, adjust the deflector atop the spout for the longest desired throwing distance. Make the adjustment by moving the deflector up or down after loosening the wing nuts (item E, figure 9). When tightening the wing nuts, be sure that the deflector fits tight against the back of the spout. Do the adjustment with the engine stopped. Check it with the engine operating at full speed.

When further adjustment of the throwing distance is needed after you have done the initial adjustment, simply slow the engine or angle the throwing direction. Either or both of these methods will reduce the throwing distance.

Removal Speed

Light to medium depth snow can be cleared using the full width of the auger on each pass, overlapping the passes a few inches to prevent spillage over the side.

In deep or very heavy snow, it may be necessary to make the first pass with the snow thrower partially raised, backing up every few feet so the tractor tires do not slip in the snow left on the surface.

On subsequent passes in heavy snow, slice off less than the full width of the auger to prevent it from becoming overloaded. Judge how wide a slice to take by watching the stream of snow coming from the spout. The snow should flow freely. If it does not, take a narrower slice of snow. Any time snow stops flowing freely from the spout, use reverse to back away until the snow thrower clears itself and then inch slowly into the snow. You will soon get the feel of how fast to go, and how wide a slice to take.

WARNING

Always stop the engine before working near or on the auger or spout. Never insert your hand into the auger or spout.

If the auger stalls or the chute plugs, **DISENGAGE THE PTO IMMEDIATELY. STOP THE ENGINE AND REMOVE THE KEY.** Set the parking brake, and remove the foreign object or clear the spout.

If you hit an object with the snow thrower or an object in the auger stops its rotation, stop the tractor and engine. Remove key. Then remove the object and inspect and, if needed, readjust chain tension. (See Normal Care section of this manual.)

Normal Care

CONTENT OF SECTION

Your snow thrower was built to provide years of service with only minor care. These minor tasks, however, must be done to keep it in good operating condition and to avoid costly repairs. This section tells you when and how to perform the needed care.

SCHEDULED CARE

A schedule for normal, routine care is given in figure 10. This schedule is based on operating hours. To be sure that you meet the schedule, you will have to keep a record of operating hours. This can be done on the maintenance record (figure 13).

NORMAL STORAGE

Between snow removal jobs, the tractor and snow thrower are best stored in a cool, dry area. If the unit is stored in a warm (above freezing temperature) area, it should be moved outdoors and allowed to cool before beginning work. Otherwise, the snow may melt on the warm surfaces of the snow thrower and then freeze where it can cause jams.

Before returning the unit to storage, stop the tractor and remove key from ignition. Then brush off all snow from both the snow thrower and the tractor. If possible, restart the tractor engine and allow it to idle for about 5 minutes. This will help melt and dry up snow in hidden areas of the engine. These efforts will help avoid freeze-ups that would otherwise prevent easy starting and operating the next time the unit is needed.

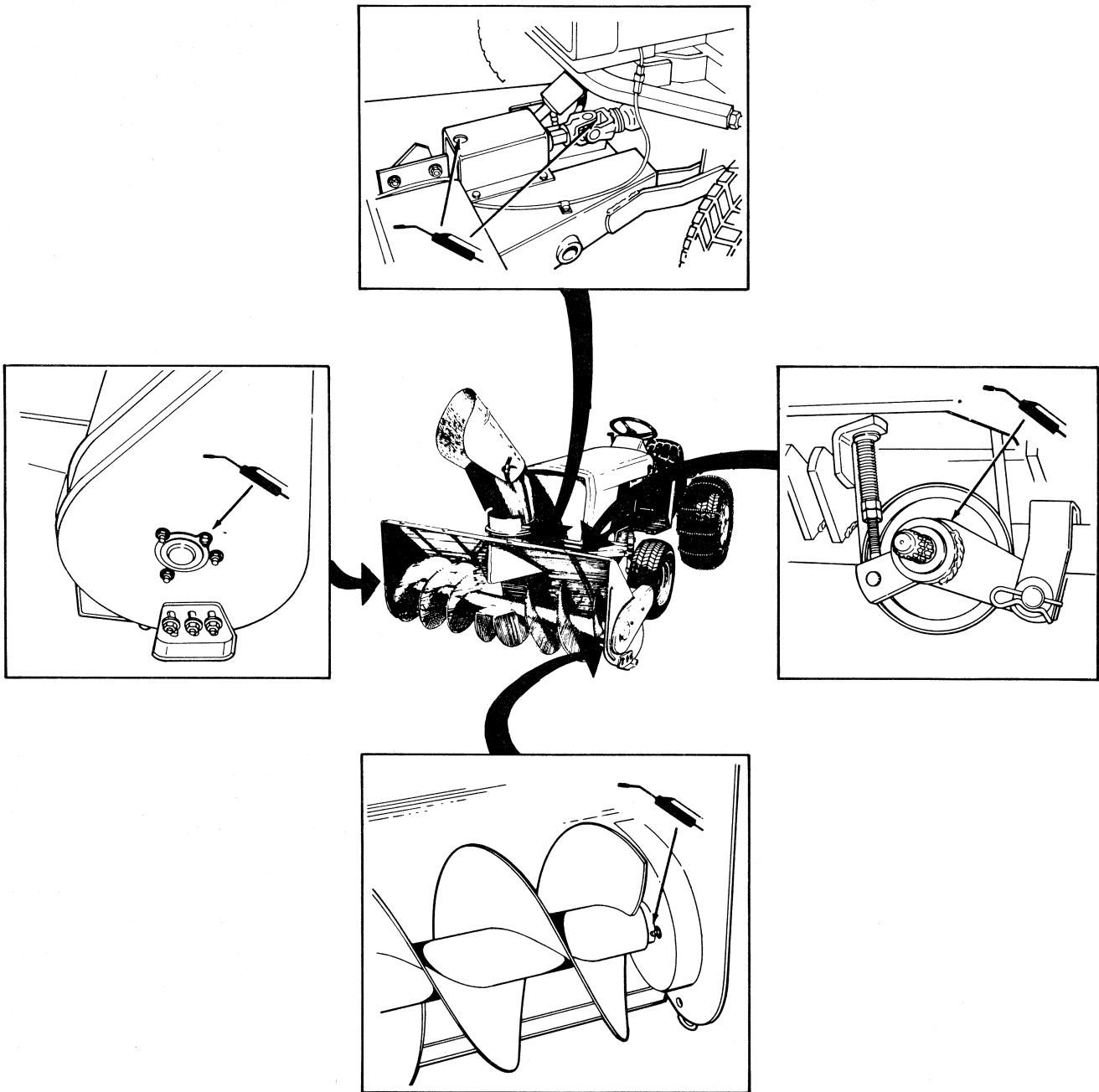
OFF-SEASON STORAGE

To protect your snow thrower, store it in an enclosed dry area. Prepare the snow thrower for off-season storage as follows:

1. Remove snow thrower from tractor.
2. Hose or brush the main housing to remove all dirt and chipped paint.
3. Paint or lightly coat with oil any area where paint has worn or chipped away.
4. Lubricate snow thrower (figure 11).
5. Inspect drive belt and drive chain (figure 12).

Care Required	See Figure	Schedule			
		Before Each Use	After Each Use	Every 10 Hours*	Yearly**
Check to be sure all exterior screws, nuts, bolts and pins are present and secure		•			
Clean Snow Thrower			•		
Lubricate Snow Thrower	11			•	
Inspect, adjust, and lubricate drive chain	12				•
*At least once a year.					
**More often under heavy use.					

Figure 10. Summary of Scheduled Care



NOTE
Keep grease off belts and pulleys.


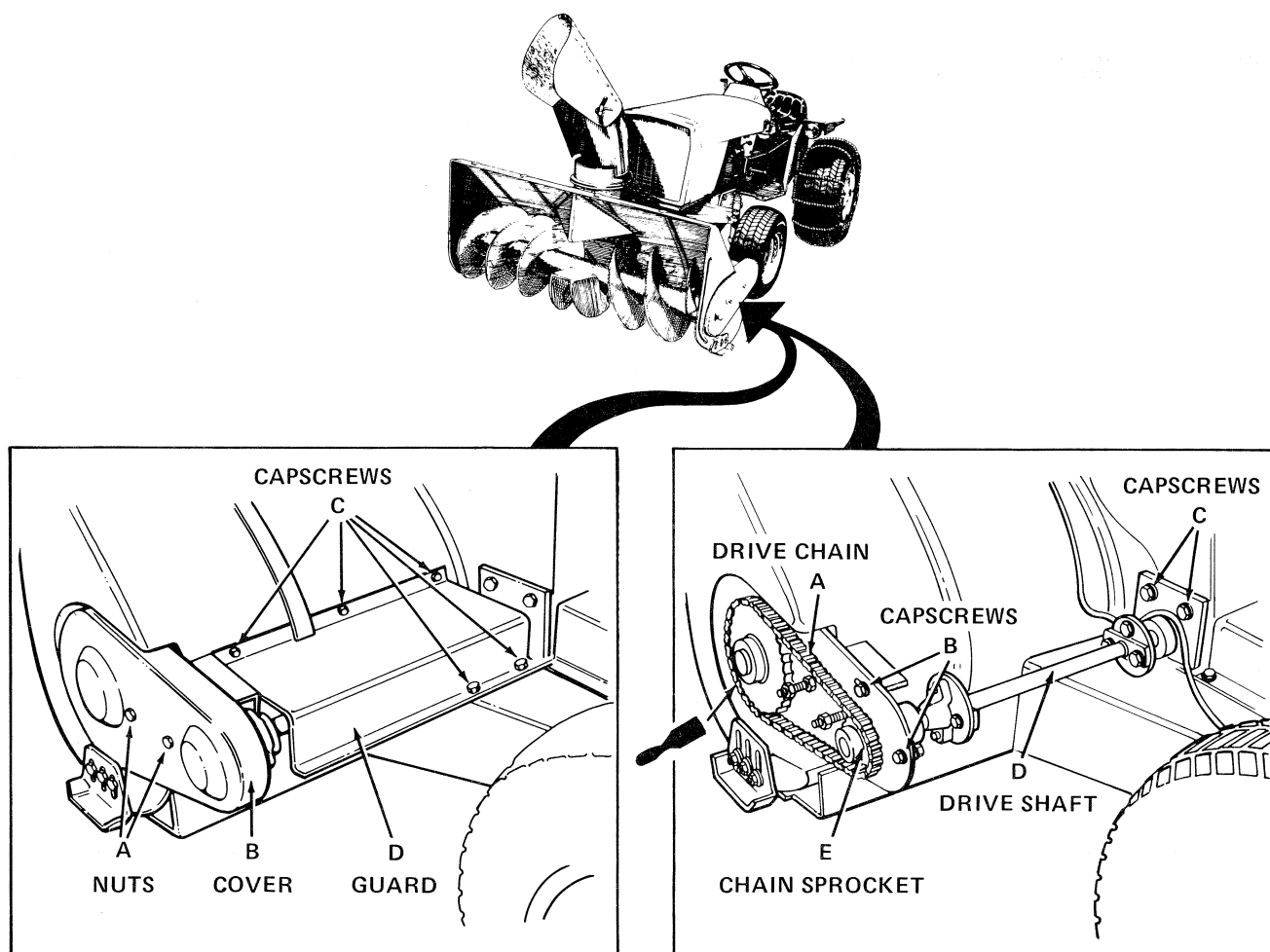
Symbol	Use	Apply With	Procedure
	Lithium base automotive grease	Grease gun	1. Wipe fitting clean with rag. 2. Apply 3 or 4 shots of grease. 3. Wipe up any excess grease.

Figure 11. Lubricate Snow Thrower (10-Hour Care)



1. Inspect Chain

- a. Remove two nuts and chain cover.
- b. Inspect chain for wear and replace if necessary.

2. Tighten and Adjust Chain

- a. Loosen three capscrews in left bearing plate.
- b. Remove five capscrews to remove guard.
- c. Pull rearward on chain sprocket until all slack in chain is removed.

- d. Tighten three capscrews.

- e. Loosen four capscrews and nuts in right hand bearing plate.

- f. Move right end of drive shaft forward or rearward to make shaft parallel to snow thrower housing.

- g. Tighten four capscrews and nuts.

3. Lubricate Chain (See Chart)

- a. Replace guard and chain cover.


Symbol	Use	Apply With	Procedure
	Lithium base automotive grease	Brush or Hand	<ol style="list-style-type: none"> 1. Wipe old grease and dirt from area. 2. Apply liberal coat of grease.

Figure 12. Inspect, Adjust and Lubricate Drive Chain (Yearly Care)

[illegible]

16

Troubleshooting

CONTENT OF SECTION

This section of the manual tells you how to troubleshoot some of the more common and easily corrected snow thrower problems. The same type of data for the tractor can be found in your tractor owner's manual. For problems not covered in these manuals, it is recommended that you contact your dealer.

TROUBLESHOOTING PROCEDURES

Troubleshooting procedures are provided in figure 14. To use these procedures, first locate the problem description that best describes the trouble that you have encountered. Check the possible causes

one at a time in the order that they are listed. Correct any problems that are found and try to operate the snow thrower again to see if you have eliminated the trouble.

WARNING

For your safety, do not try to adjust or repair the tractor or snow thrower while the engine is running. Remove the key from the ignition switch before beginning maintenance to prevent accidental starting of the engine. Always lower snow thrower to the ground.

Problem	Cause/Remedy
1. Snow thrower auger does not rotate.	<ul style="list-style-type: none"> A. Tractor front clutch switch not engaged. Engage front clutch switch. B. Foreign material caught in auger. See Operation section of this manual. C. Snow thrower drive belt slipping. Adjust drive belt tension. See Adjustment section. D. Broken chain. Replace chain.
2. Auger rotates, but snow not thrown far enough.	<ul style="list-style-type: none"> A. Engine speed too slow. Operate engine at full speed. B. Tractor speed too fast. Reduce speed. C. Snow thrower discharge spout clogged. STOP ENGINE. Unplug discharge spout. D. Drive belt slipping. Tighten drive belt tension. See Adjustment section.
3. Scraper bar does not clean down to hard surface.	<ul style="list-style-type: none"> A. Place tractor hydraulic lift lever in FLOAT position. B. Skid shoes not properly adjusted. Adjust skid shoes. See Adjustment section.
4. Snow thrower picks up and throws stones on gravel drive.	<ul style="list-style-type: none"> A. Skid shoes not properly adjusted. See Adjustment section. B. Too much down pressure on snow thrower. Place hydraulic lift lever in FLOAT position.
5. Tractor does not have sufficient traction or is not stable on slopes.	<ul style="list-style-type: none"> A. Tractor too light at rear wheels. Add rear wheel weights. B. Operating on slippery surface. Use tire chains. C. Tractor speed too fast. Reduce speed. D. Tire pressure incorrect. Inflate tires according to tractor operator's manual.

Figure 14. Troubleshooting

Adjustments

CONTENT OF SECTION

It is important that the snow thrower be properly adjusted for the job at hand. This section tells you how to make these needed adjustments.

WARNING

Before attempting to check or adjust the snow thrower, stop engine, remove key, set parking brake, and lower the snow thrower.

SKID SHOE ADJUSTMENT

Before using the snow thrower, the skid shoes (item A, figure 15) should be adjusted for the type of surface to be worked on. For clearing snow from uneven or gravel surfaces, set the skid shoes so the scraper bar rides above the ground. For snow removal on smooth surfaces like concrete, the scraper bar should ride directly on the surface. To adjust, proceed as follows:

1. Raise the snow thrower with tractor lift until snow thrower is several inches off the surface. Then stop engine, set the parking brake, and remove the key.
2. Loosen three mounting nuts (item B) on both skid shoes.
3. For gravel, drop the skid shoes to lowest position. Adjust skid shoes so they are level, or slightly higher in front. For use on hard surface, lower snow thrower with tractor lift until the scraper bar supports itself.
4. Tighten all nuts. Torque to 45 foot pounds (61 N·m).
5. Check and be sure both skid shoes have been positioned the same way.

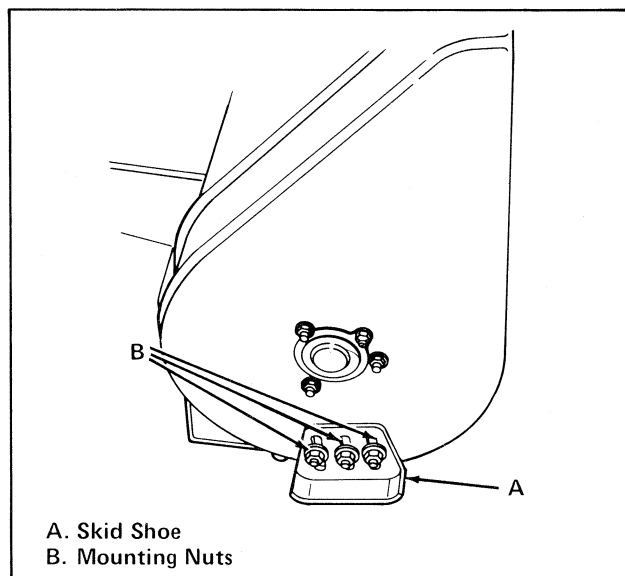


Figure 15. Skid Shoe Adjustment

DRIVE BELT TENSION ADJUSTMENT

1. Adjust two nuts (item A, figure 16) on belt tensioning rod (item B) to provide spring length of 2-3/8 inches (60.3 mm).
2. Lock the two nuts together so adjustment does not change.

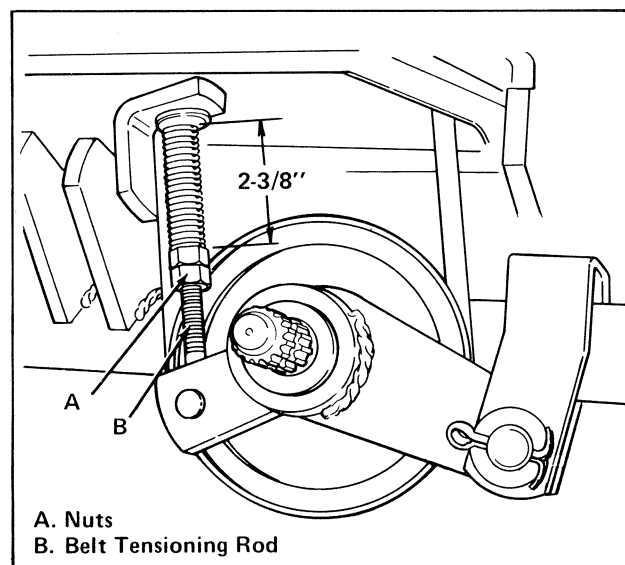


Figure 16. Drive Belt Tension

Assembly

CONTENT OF SECTION

The snow thrower is sent from the factory only partially assembled. This section tells you how to assemble the snow thrower so that it is ready to install on the tractor. It also tells you how to prepare the tractor for installation of the snow thrower.

ASSEMBLY OF SNOW THROWER

Remove the snow thrower from the shipping crate. Open the plastic packages and sort out all the mounting hardware by type and size. Then assemble the snow thrower spout as follows:

1. Remove spout roller (item A, figure 17). You will have to remove cap from roller so a wrench can be used to hold inside capscrew while removing roller.
2. Place spout in the grooves (item B) of the two remaining rollers. Replace roller removed in step 1, placing the groove over spout lip.
3. Check to see the spout is centered over the opening. If not, loosen and move the rollers until spout is centered. Tighten the three rollers. Check spout for ease of rotation by hand.

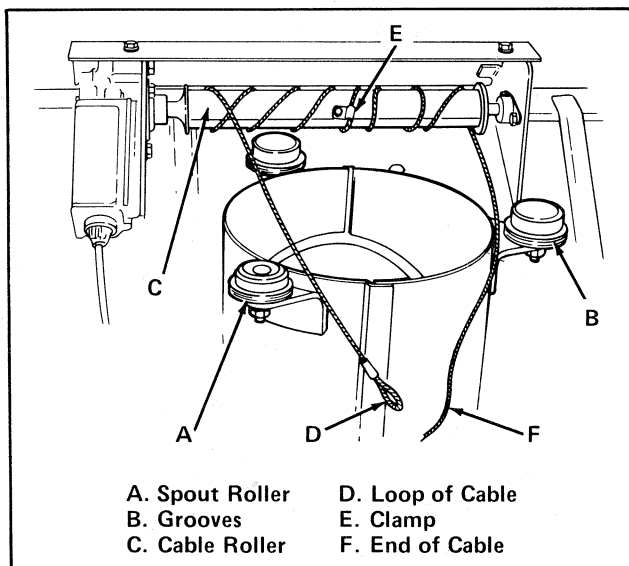


Figure 17. Spout Assembly

4. If the roller caps have not been removed, remove them and fill with grease. Replace the caps.
5. Wrap the ends of the cable around the cable roller (item C) three or four times with the looped end of cable (item D) to the left of clamp (item E). The straight end of cable (item F) should be on right side of clamp.
6. Point spout forward and place looped end (item A, figure 18) over the stud (item B) on rear of spout.
7. Place large cupped washer (item C) over stud with cupped side facing inward. Rotate cupped washer so cut-off side is on your left, facing the stud.
8. Wrap the loose end of the straight cable (item D) around stud, outside of the cupped washer placed on stud in step 7. Pull loose end tight with a pair of pliers.
9. While holding loose end of cable tight on stud, place another cupped washer (item E) on stud. Install cupped washer so cupped side faces outward.
10. Install lockwasher (item F) and locknut (item G) on stud. Tighten securely.

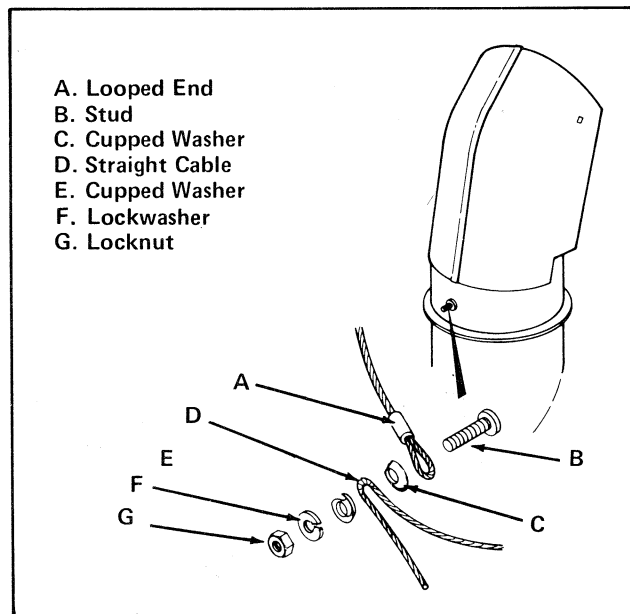


Figure 18. Attaching Cable

11. Take excess straight cable (item A, figure 19) and tape it to the secured cable (item B) attached to stud.

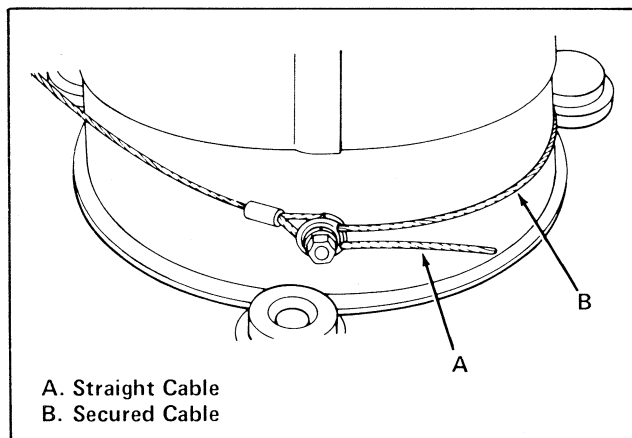


Figure 19. Secure Cable

12. Install spout deflector (item A, figure 20) to spout (item B) by using carriage bolt (item C) and special washer (item D). Install special washer so tips curve toward the deflector.
13. Add flat washer (item E) to special washer and secure with wing nut (item F).
14. Repeat steps 12 through 13 for other side. Adjust as desired. Secure in position with both wing nuts.

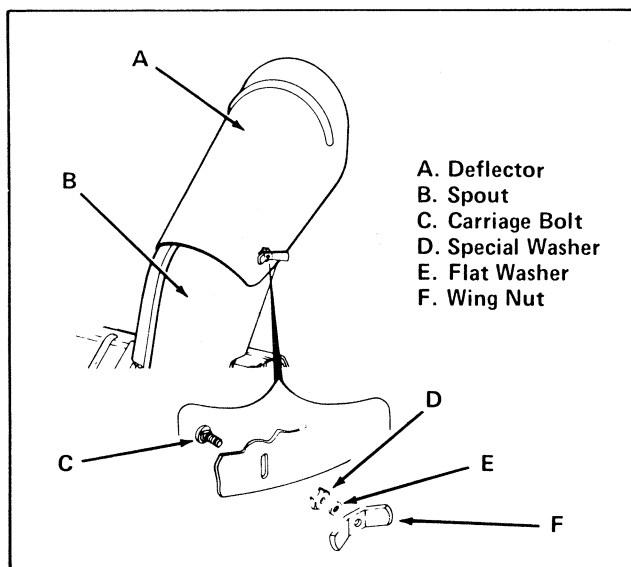


Figure 20. Install Deflector

PREPARING THE TRACTOR

1. Install a carriage bolt (item A, figure 21) and spacer (item B) to inside frame, through upper hole (item C) located below front PTO pulley (item D). The bolt head acts as a bumper for the belt.
2. Secure bolt and spacer to inside frame with lockwasher (item E) and hex nut (item F) outside the frame.

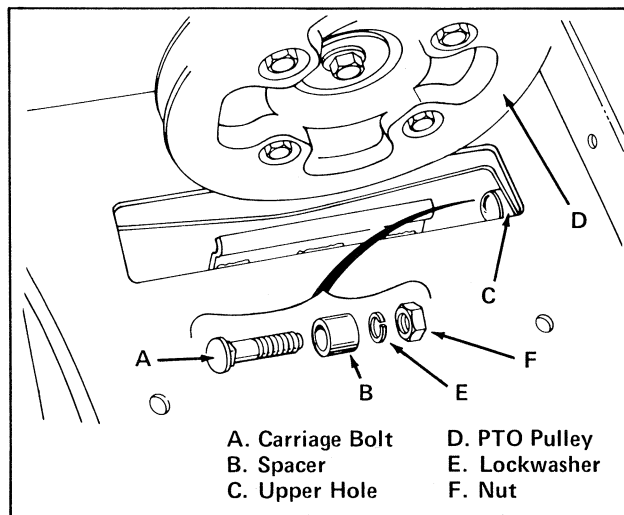


Figure 21. Installation of Spacer

⚠ WARNING

Disconnect the negative battery terminal and fasten it so it cannot swing back against the battery post.

3. Remove capscrews (item A, figure 22) and pull the steering wheel off. Remove six capscrews (item B) and lift up control panel.

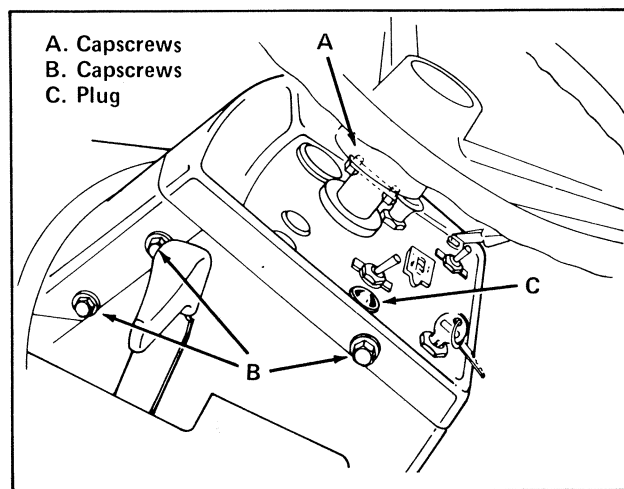


Figure 22. Lift Out Control Panel

4. Remove plug (item C). This hole is where the spout control switch will be installed.
5. Install new rubber grommet (item A, figure 24).
6. With panel partially removed install spout control switch (item D). Remove nut from switch. Insert switch through hole in panel from rear side and reinstall nut.
7. Install spout control harness furnished with the snow thrower. See figure 23.

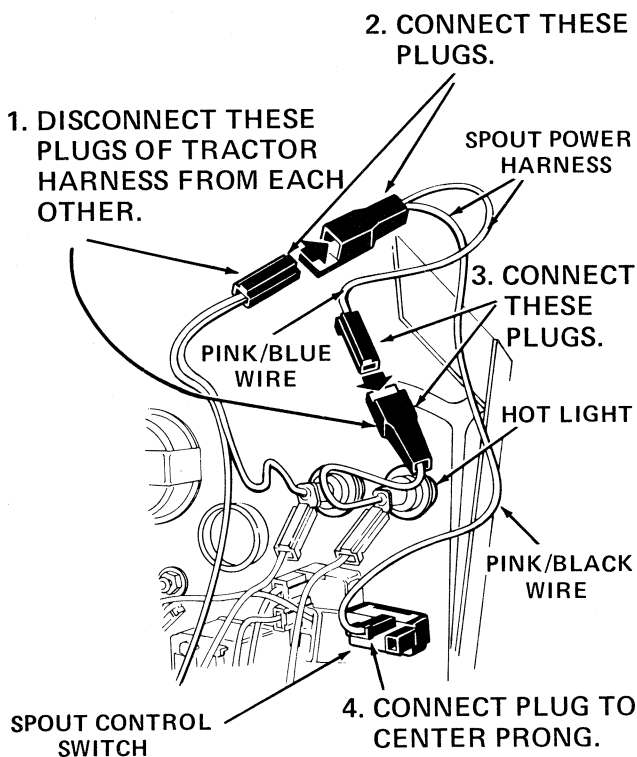


Figure 23. Install Spout Control Harness

8. Route two connector ends of spout control harness through the rubber grommet (item A, figure 24).
9. Connect red wire (item B) to the left terminal and the black wire (item C) to the right terminal of the spout control switch.

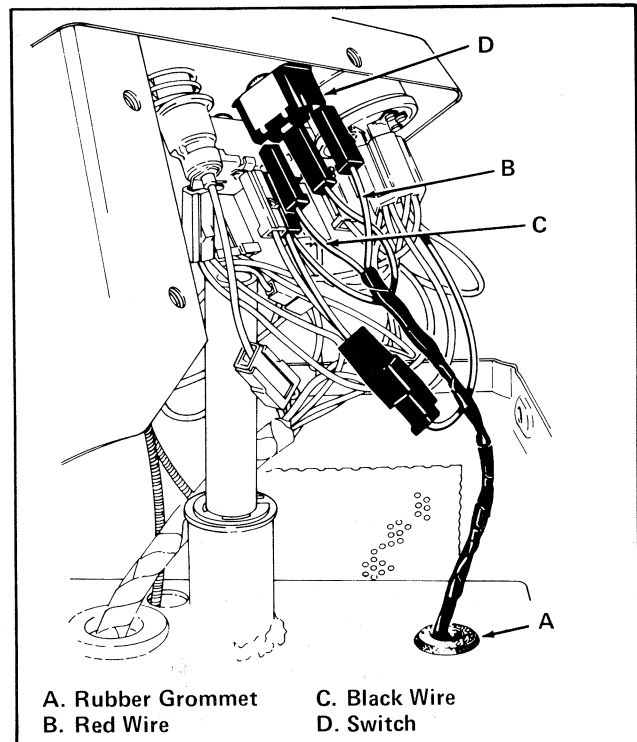


Figure 24. Connect Terminal to Spout Switch

10. Remove oil cooler capscrews (item A, figure 25) and washers (item B) on left and right side of tractor. Rotate oil cooler over to the right side. Remove the left hand rear cooler shroud (item C).

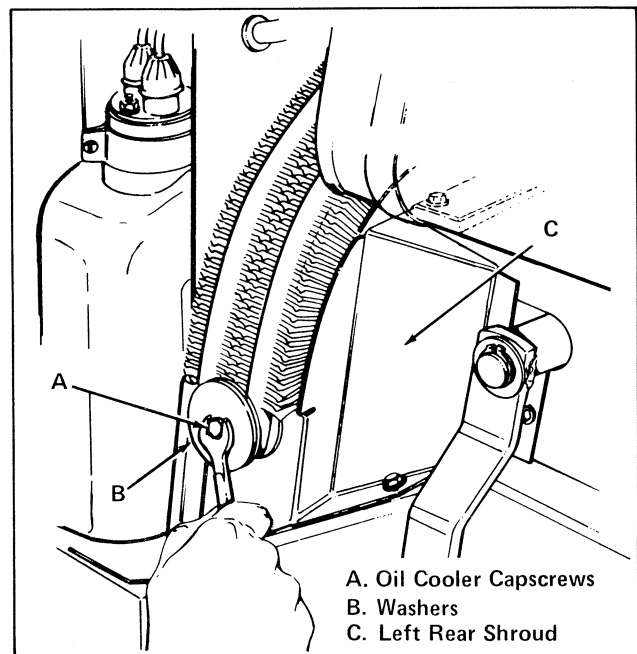


Figure 25. Loosen Cooler and Remove Shroud

11. Route end of wiring harness along left side of control housing, over the parking brake, under the lip of the side frame.
12. Continue routing the wire between the left hand side of the engine and frame. The wire must be routed to prevent it from rubbing on the drive shaft.
13. Install the smaller of two wire clips (item A, figure 26). Use the larger clip (item B) to fasten wire to outside of frame. The end of wire with connector can be stored behind the battery cover spring (item C).

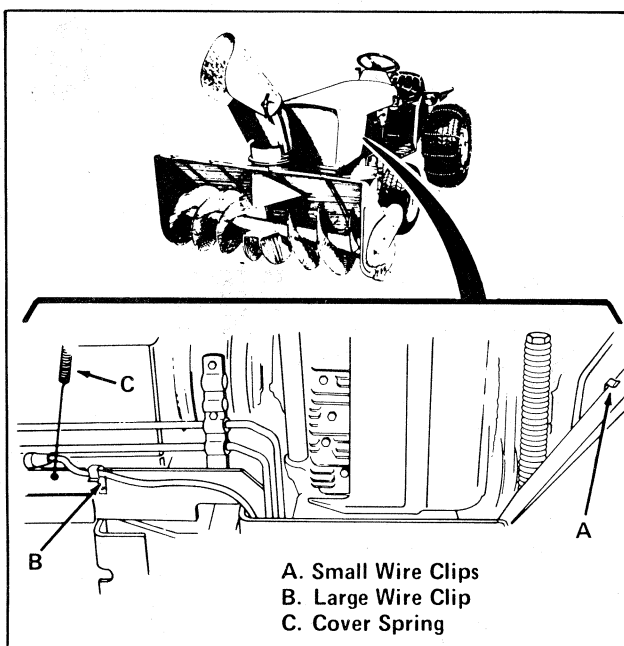


Figure 26. Routing Wiring Harness

14. Rotate oil cooler back into position. Replace washers and capscrews to both sides of cooler. Replace left rear shroud. Secure with capscrews.
15. Replace tractor control panel and steering wheel. Secure with capscrews.
16. After the control panel is installed, a clip (item A, figure 27) must be placed on the choke control wire (item B). This will prevent the wire from catching on the hydrostatic transmission control.

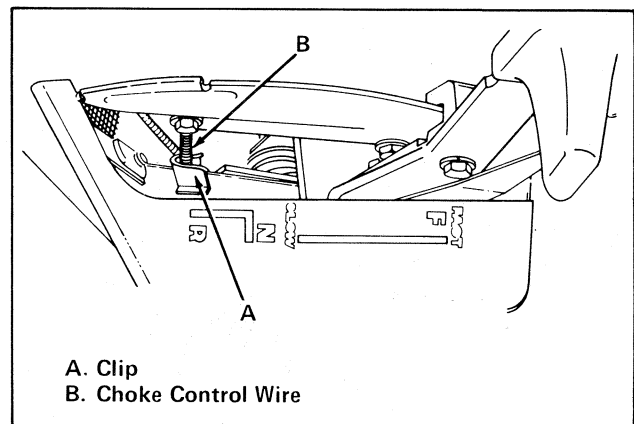


Figure 27. Secure Choke Control Wire

17. The tractor is now prepared for installation of the snow thrower.