

32" ROTARY SNOW THROWER

MFG. NO. 1690034 32" SNOW THROWER

OPERATOR'S MANUAL

Dear Customer:

Congratulations on your selection and purchase of this snow thrower attachment. It has been carefully designed and constructed to give you years of dependable service. To ensure yourself of the utmost value and performance from this snow thrower, read this manual carefully. Be certain that your snow thrower is assembled, installed, and adjusted properly.

For your protection, be sure that you (and anyone who will operate this machine) know how to use the machine safely. Read this manual and your tractor manual thoroughly and become familiar with all controls before actual operation.

Also, carefully read and follow the safety rules in this manual and those in your tractor manual. Review this safety information often; it is there for your benefit and it is important.

This manual provides you with step-by-step installation, operation, assembly, and service procedures for your snow thrower. If help is needed with any of these procedures however, your dealer will be happy to assist you.

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.....
BE A SAFE OPERATOR
AVOID ACCIDENTS BY
THINKING BEFORE ACTING
AND BY READING YOUR OPERATORS MANUAL
.....



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 Operating and Service Instructions carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.
- Do not carry passengers.
- Use only attachments or accessories designed for your machine. See your dealer for a complete list of recommended attachments or accessories.
- Keep the area of operation clear of all persons, particularly small children, and pets.
- When using any attachments, never direct discharge of material toward bystanders or allow anyone near the vehicle while in operation.
- Make sure:
 - a. tractor and attachments are in good operating condition,
 - b. all safety devices and shields are in good working condition, and
 - c. all adjustments have been made.

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 gasoline container.
 - b. Never remove the cap of the fuel tank or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.
- Adjust skid shoe height to clear gravel or crushed rock surface.
- Do not run the engine indoors. Exhaust fumes are deadly.

Operation

- Disengage power to attachment(s) and stop the engine before leaving the operator's position.
- Always clear snow up and down the face of slopes, and never across the face. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
- 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.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.

- If the unit should start to vibrate abnormally, stop the engine, disengage PTO, and 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.
- 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.
- Never operate snow thrower near glass enclosures, automobiles, window wells, drop-offs, etc., without proper adjustment of snow discharge angle.
- 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.
- Disengage power to snow thrower when transporting or not in use.
- Never operate the snow thrower without good visibility or light. Always be sure your feet are properly placed on the foot rests and keep a firm hold on the steering wheel.

Maintenance and Storage

- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
- Do not change the engine governor settings or overspeed the engine.
- To reduce the hazard, keep the engine free of grass, leaves, or excessive grease.

ALL WARNING, CAUTION, and instructional messages on this attachment and on your tractor should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important. The following is on your snow thrower attachment.

STAY AWAY FROM ROTOR AND DRIVE WHEN ENGINE IS RUNNING

LOCATION: ON SNOW THROWER AUGER HOUSING

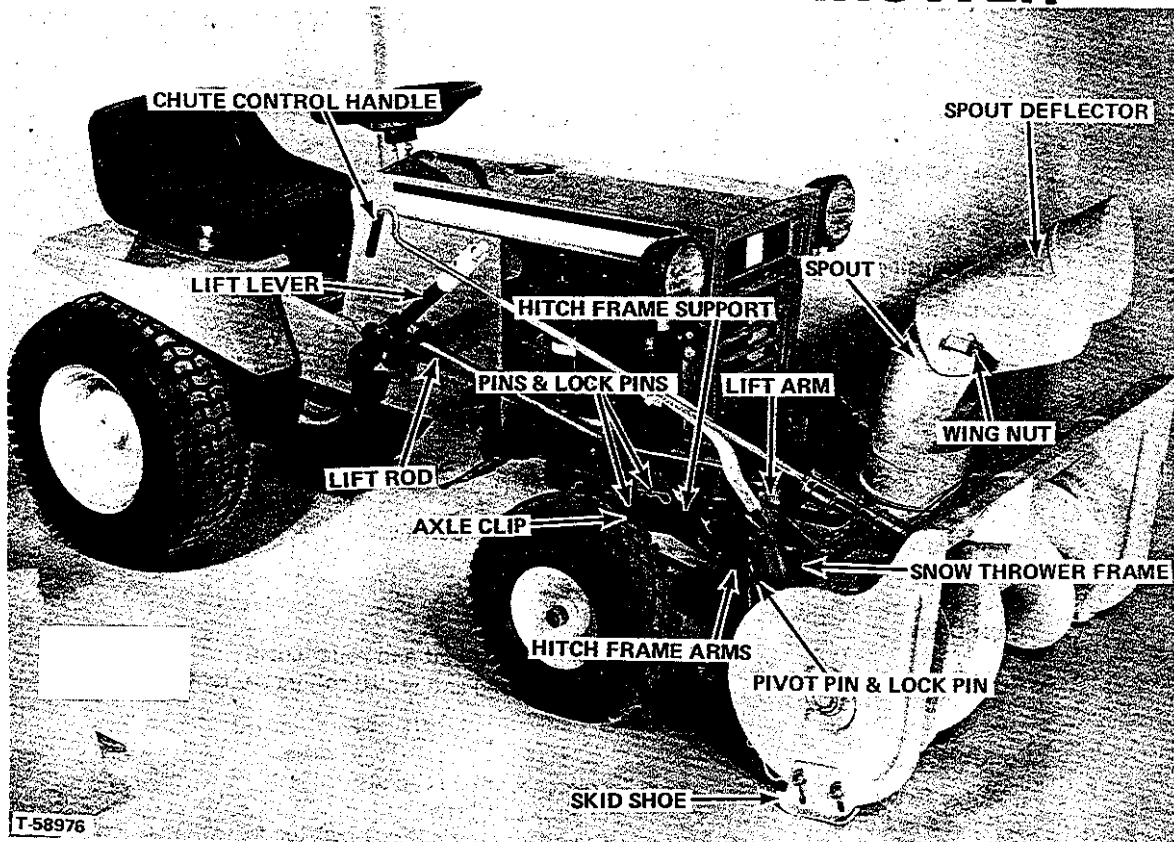
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SPECIFICATIONS

AUGER	DRIVE TYPE	Cushioning V-Belt and Roller Chain
	CLUTCH	V-Belt Idler
	CONSTRUCTION	Solid Flite Welded Steel
	DIAMETER	14 Inches
	EFFECTIVE WIDTH	32 Inches
	ROTATION SPEED	1079 R.P.M. (At Full Engine Speed)
HOUSING	MOUNTING	Front Axle, Four Pins
	CONSTRUCTION	Welded Steel Channel and Stampings
	OPENING HEIGHT	19 Inches
	CHUTE DIAMETER	6-1/4 Inches
	FRONT SUPPORT	Adjustable, Hardened, Large-Area Skid Shoes
	SCRAPER BAR	Full Width, High Carbon Steel, Replaceable
	SPOUT	ROTATION: 255 Degrees with adjustable deflector
SKID SHOES	Adjustable Height	
CONTROLS	AUGER DRIVE	Spring Tensioned V-Belt Idler
	RAISE & LOWER	Tractor Lift Lever
	SPOUT ROTATION	"T" Handle to Right of Operator
	TYPE	Freeze-Proof Stainless Steel Aircraft Cable
DIMENSIONS	LENGTH	22 Inches
	HEIGHT	19 1/2 Inches
	WIDTH	33-1/2 Inches
	WEIGHT	NET: 111 Lbs. SHIPPING: 122 Lbs.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

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ATTACHING SNOW THROWER TO TRACTOR (Figures 1 and 2)

FIGURE 1

1. With the snow thrower hitch frame disconnected from the snow thrower frame, place the hitch frame under front of tractor. Raise it and attach it to axle clips on tractor with pins and lock pins. Be sure that snow thrower hitch frame is attached to the upper holes in tractor axle clips as shown in Figures 1 and 3.
2. Attach the lower hole in hitch frame supports to the rear of 2 holes in middle of hitch frame arms and pin the upper, clevis end, of frame supports to holes in tractor frame - (See Figures 1, 2 and 3).
3. Make sure that the snow thrower drive belt is placed over the driven pulley on the snow thrower, and attach the snow thrower frame to the front end of the hitch frame with two pivot pins and lock pins (Figure 1).
4. Place rear end of lift rod in upper hole of lift lever and secure with lock pin. Place pin portion of the lift rod sleeve assembly in the hole in lift arm and secure with lock pin (Figure 2).

NOTE: With scraper bar on bottom of snow thrower resting on the ground, check to be sure that the lift lever on tractor is not against its forward stop. If it is, loosen setscrew in lift rod sleeve assembly and slide lift rod to the rear until there is

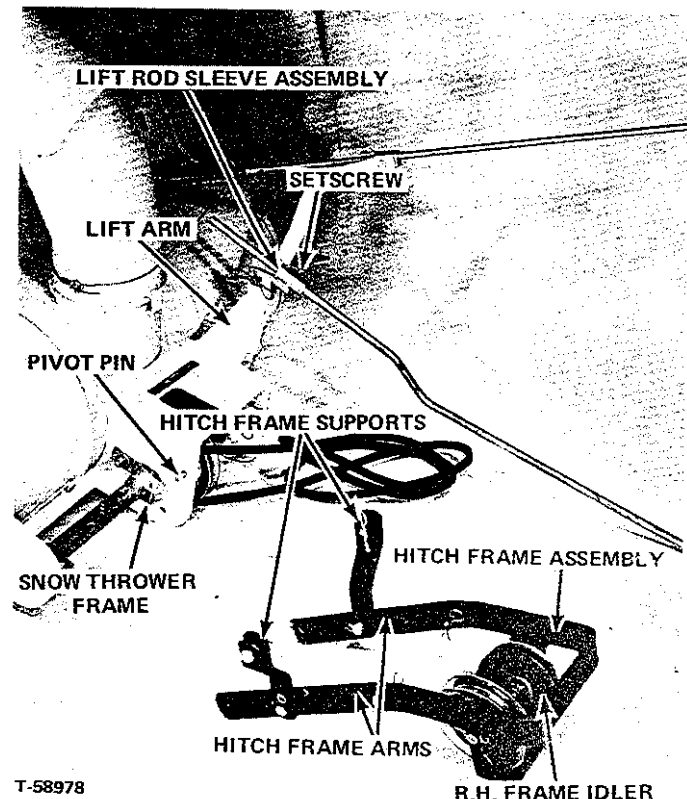


FIGURE 2

32" ROTARY SNOW THROWER

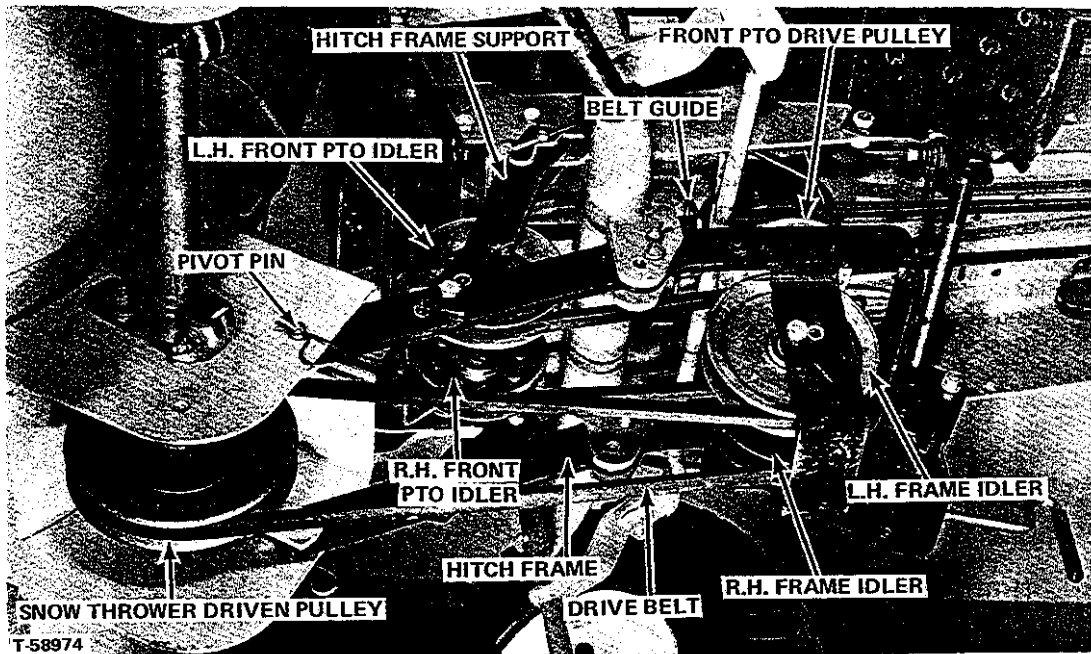


FIGURE 3 - View from Under Front L.H. Side of Tractor (Wheel Off)

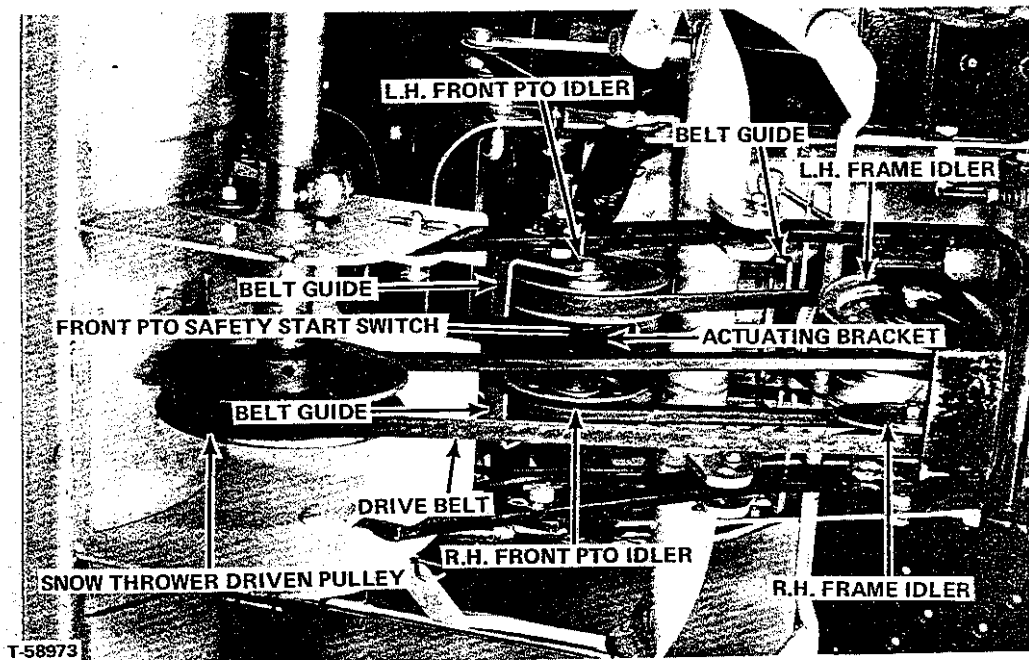


FIGURE 4 - View from Directly Under Front of Tractor

at least 1/2 inch lift rod motion possible before lift lever hits the lower stop in order to provide proper "float" of snow thrower over uneven ground. Lock setscrew against lift rod.

5. Loosen the bolts that mount the R.H. and L.H. front PTO idlers enough that belt guides can be pushed away far enough to install drive belt (Figures 3 and 4). Place PTO clutch in disengage position.

6. Carry strand of belt from lower side of snow thrower driven pulley to the rear and place it around the R.H. frame idler with "V" side of belt toward idler. Also bring strand of belt from top of driven pulley to rear and place it over L.H. frame idler with the flat top side of belt toward idler as shown in Figures 3 and 4.
7. Carry belt forward, under the axle and place strand from R.H. frame idler over the R.H. front PTO

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idler with flat top side of belt toward idler. Place strand from L.H. frame idler over L.H. front PTO idler with "V" side of belt toward idler.

8. Place end of belt back over top of axle, through rectangular loop of belt guide and over front PTO drive pulley (Figures 3 and 4).
9. Tighten the mounting bolts of the R.H. and L.H. front PTO idlers, locating the belt guides straight forward and adjusting the actuating bracket to the PTO safety start switch at the same time. (Refer to Front PTO Safety Start Switch in the Adjust-ment section of the tractor part of this manual).
10. Pull P.T.O. lever all the way back to the disengaged position. Adjust safety switch actuator on capscrew so safety switch is actuated when P. T.O. pulleys are 1/8 inch from axle (Figure 4A). Tighten nut. Be sure P. T.O. pulleys do not rub on axle.

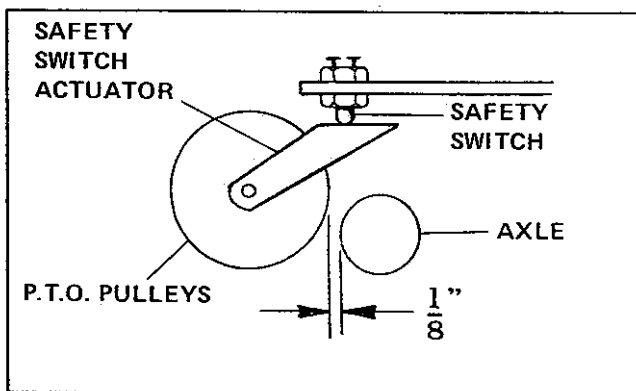


FIGURE 4A

11. Engage tractor PTO clutch and check belt tension. When fully engaged the PTO clutch spring should be 2-1/2 inches long as shown in Figure 5. Readjust set collar on clutch rod to obtain this dimension.

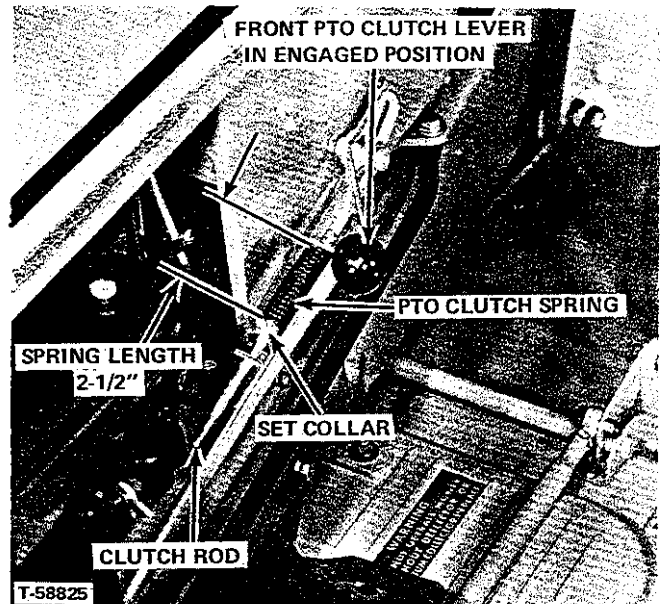


FIGURE 5

REMOVING THROWER FROM TRACTOR (Figures 1, 3 and 4)

1. Release tractor PTO clutch and remove blower drive belt from front PTO drive pulley and the right hand and left hand front PTO idlers.
2. Disengage lift rod from lift lever.
3. Remove pins and lock pins holding hitch frame and hitch frame supports to tractor.

OPERATION AND ADJUSTMENTS

PREPARING TO START

1. Read this section of the owners manual and the section for the tractor carefully. Be sure you are familiar with the safety precautions, controls and operating instructions for both tractor and snow thrower.
2. **CAUTION:** Before attempting to inspect, adjust or service the snow thrower be sure the power take off is disengaged, the engine shut off, and that all moving parts have stopped.
3. Check the snow thrower carefully to be sure it is properly installed.
4. Check the condition of the snow thrower auger. Clean it of any frozen ice particles or other objects which could cause damage when it is started.

5. Lubricate the snow thrower according to instructions under Lubrication and Service section in this book.
6. Clean the area to be cleared of any articles which may be caught or thrown by the snow thrower.

SPOUT DEFLECTOR POSITION (Figure 1)

The spout deflector can be adjusted up or down by loosening the wing nuts which connect it to the spout. Its position along with engine speed control is used to control throwing distance and placement of snow. Normally the greatest throwing distance is obtained with the spout deflector up and engine speed high.

CAUTION: ALWAYS make sure that the tractor engine and the auger of the snow thrower is stopped before adjusting the spout deflector.

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SKID SHOE ADJUSTMENT (Figure 1)

When operating on a gravel or rough, uneven surface the skid shoes on each side of the snow thrower should be adjusted all the way down to support the snow thrower with the scraper bar raised above the surface to prevent picking up and throwing stones.

When operating on a smooth hard surface the skid shoes should be loosened and the snow thrower lowered until the scraper bar under auger contacts the surface full width. Make sure the skid shoes also contact the surface and tighten then in that position.

PLANNING SNOW REMOVAL PATTERN

Before beginning snow removal the operator should determine the best snow removal pattern. The size, shape, terrain and obstructions of the area, as well as the wind direction and velocity should be considered. If possible snow should always be thrown down wind and operation should be started on windward side so that snow is not thrown over an area already cleared. Usually if wind permits it is best to drive back and forth the long way of the area to reduce turning. In small areas it is frequently easier to back up in the path already cleared and do all throwing traveling in one direction rather than to turn around.

NOTE: ALWAYS RAISE THE SNOW THROWER OFF THE GROUND BEFORE TURNING OR BACKING TO PREVENT DAMAGE TO IT. When transporting to and from place of use the snow thrower should also be carried in the raised position with the power take off turned off.

OPERATING TRACTOR WITH SNOW THROWER

Refer to your tractor operators manual for instructions on how to operate the tractor and use the controls. Also review the safety precautions given for tractor operator.

IN LIGHT TO NORMAL SNOW

After planning the pattern of snow removal line up the snow thrower for the first pass. Lower the thrower by placing the tractor lift lever forward until snow thrower rides on the skid shoes.

Set the tractor engine at 1/2 throttle and engage the PTO drive to start the snow thrower. Turn the delivery spout to the proper directions by rotating the spout control handle. Always keep the spout adjusted so that operator is well out of way of snow stream.

Place tractor transmission in first gear, speed up engine to 3/4 to full speed and start tractor forward. After first pass is made you may wish to shift to a higher gear if snow is light and ground smooth. In deeper, heavy snow select a ground speed to give a steady full stream of

snow out of spout without overloading tractor engine or spout. If possible, adjust engine speed high enough that snow is thrown on beyond the edge of area to be cleared so that it will not have to be handled twice.

On second pass overlap the cleared area by a few inches to assure all snow is removed.

The amount of snow going thru thrower can be controlled by varying the width of cut as well as by varying the tractor speed.

IN HEAVY DEEP SNOW

With very dense snow or snow deeper than the center of auger a different method is suggested.

For the first pass, raise the snow thrower with the lift lever and latch it in the up position. Drive the tractor slowly through the snow with engine at full speed. At the end of the pass either turn around or back up and lower the snow thrower in the same path to clear the snow not moved on the first trip. Be sure the lift lever is forward so that thrower can float on skid shoes.

After the first path is cleared to the ground subsequent passes can be made with the snow thrower down on its skid shoes but with a considerable overlap into the cleared area. Vary the slice of snow taken to keep within the capacity of the snow thrower and engine.



CAUTION: Constant inhalation of wet cold vapor or powdered snow is extremely dangerous. On windy days have your nose and mouth covered.

PLUGGED AUGER OR SPOUT

If the auger stalls or the spout plugs, disengage the tractor front PTO clutch immediately. Stop the engine, set the parking brake and clear the auger or spout.



CAUTION: Always stop the engine and make sure auger has stopped turning before working on or near the auger or spout.

WHEN THE JOB IS FINISHED

When the clearing job is finished move the tractor to a sheltered area. With the front PTO clutch in the off position and the transmission gears in neutral let the engine run at slow speed for about 5 minutes to melt and dry up the snow in the engine compartment.



CAUTION: DO NOT RUN ENGINE IN CLOSED BUILDING. MAKE SURE THERE IS AMPLE VENTILATION to clear away the poisonous carbon monoxide in the engine exhaust gases.

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LUBRICATION AND SERVICE

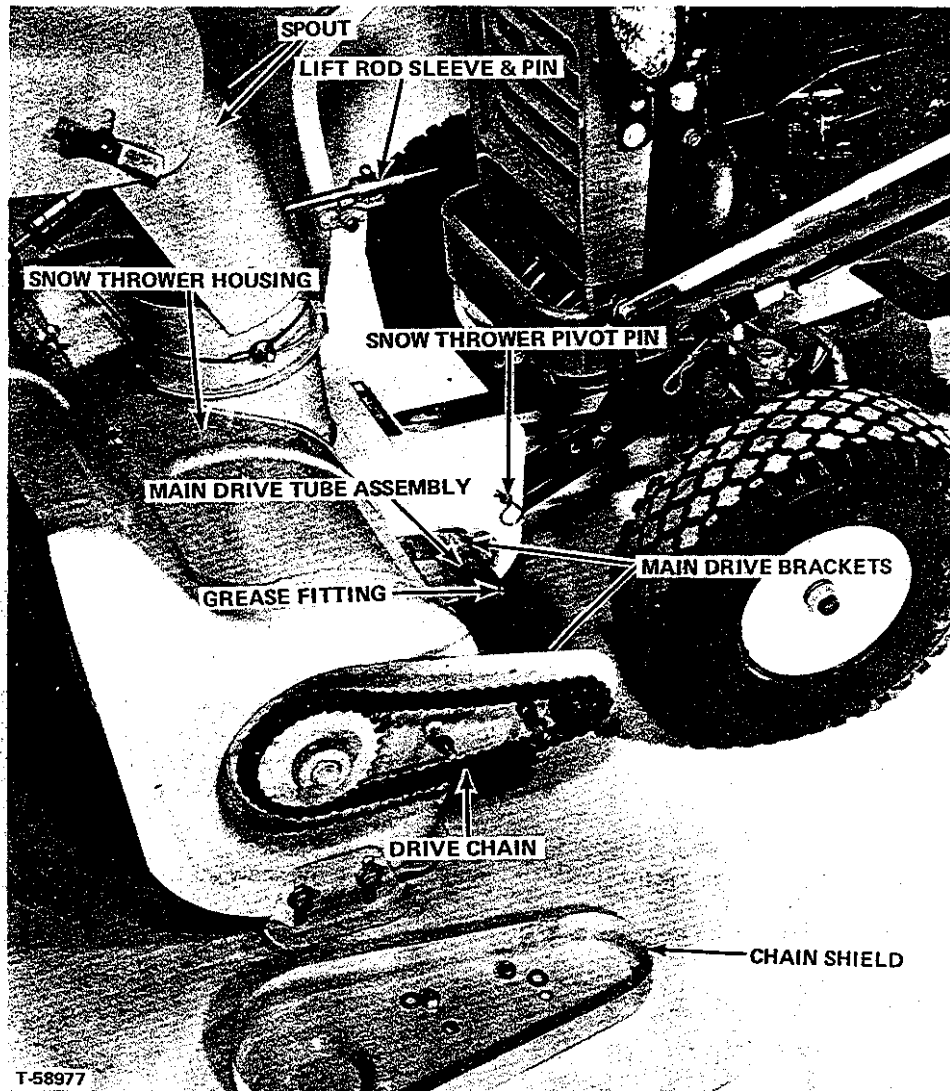


FIGURE 6

ORDERING SERVICE PARTS

Parts required for performing maintenance services or repair work should be purchased from your dealer. When ordering parts, be prepared to give him the serial number of your snow thrower.

AFTER EACH USE

Inspect the snow thrower thoroughly looking for loose or missing bolts, pins or lock pins and worn or damaged parts, etc. Also check the snow thrower housing, drive shaft and spout for any buildup of ice which may cause damage when the snow thrower is started. Clean or repair the snow thrower as needed so it is ready to use the next time you wish to use it.

EVERY 10 HOURS OF OPERATION

1. Lubricate the grease fitting on the main drive tube assembly, (Figure 6), with multi-purpose pressure gun grease.
2. Remove the two nuts that hold the chain shield to the left hand side of snow thrower. Remove the shield and coat drive chain with multi-purpose automotive grease. Replace the shield (Figure 6).



CAUTION: DO NOT attempt to lubricate chain with snow thrower auger running.

3. Place a few drops of oil on other moving surfaces such as the snow thrower pivot pin, lift rod pin, and where spout rotates on thrower housing.

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EVERY 100 HOURS OF OPERATION OR ONCE A YEAR

1. Remove chain shield on left hand side of snow thrower and inspect chain for wear and replace it if badly worn - (Figure 6).
2. Loosen the bolts that hold the main drive brackets to the snow thrower frame. Pull main drive tube assembly to rear until slack is removed from drive chain. Tighten bolt in left hand main drive bracket.
3. Move the right hand main drive bracket to make the main drive tube assembly parallel with snow thrower housing and tighten bolt securely.
4. Thoroughly coat drive chain with multi-purpose automotive grease.
5. Replace chain shield.

DRIVE BELT TENSION

The snow thrower drive belt is properly tensioned when tractor PTO clutch spring measures 2-1/2 inches as shown in Figure 7.

Check this dimension periodically and move the set collar on the clutch rod as required to maintain the 2-1/2 inch dimension when clutch is engaged.

OUT OF SERVICE PROTECTION

1. Remove the snow thrower from the tractor.
2. Use water pressure or a brush to thoroughly clean the snow thrower housing.

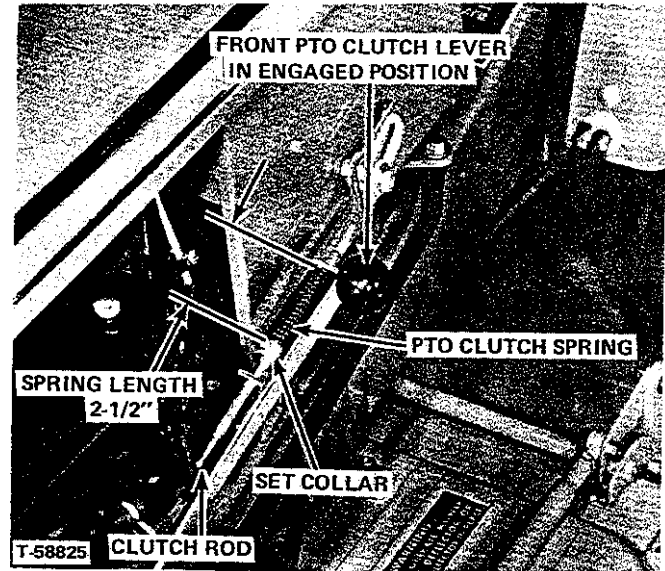


FIGURE 7

3. Paint or lightly coat with oil any area where paint has been worn or chipped away.
4. Lubricate the snow thrower according to the every 10 Hour Maintenance service.
5. Perform the 100 hour or once a year inspect, adjust and lubricate service on auger drive chain outlined above.
6. Store the snow thrower in a dry place.

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SERVICE TIPS		
IF YOU HAVE	POSSIBLE CAUSES	TO CORRECT
Snow thrower auger that does not rotate.	Tractor PTO clutch not engaged. Wood or other foreign material caught in auger. Snow thrower drive belt slipping.	Engage PTO clutch. See Plugged Auger or Spout in Operation Section. Adjust drive belt tension.
Auger that rotates, but snow not thrown far enough.	Engine speed too slow. Ground speed too fast. Snow thrower discharge spout clogged. Loose drive belt.	Operate engine at full speed. Reduce ground speed. STOP ENGINE. Unplug discharge spout. Tighten drive belt.
Scraper bar that does not clean down to hard surface.	Snow thrower not lowered enough. Skid shoes not properly adjusted.	Move eyebolt on lift rod to lengthen rod assembly. Adjust skid shoes up.
Snow thrower that picks up and throws stones on gravel drive.	Skid shoes not properly adjusted for gravel surface.	Adjust skid shoes fully down.
Tractor that does not have sufficient traction or is not stable on slopes.	Tractor too light at rear wheels. Operating on slippery surface. Ground speed too fast. Tire pressure incorrect.	Add rear wheel weights and rear weight. Use tire chains on slippery surfaces. Reduce ground speed, use first gear. Inflate tires according to tractor owner's manual.

ACCESSORIES

RECOMMENDED ACCESSORIES

The following accessories will improve traction and make the snow removal job easier and more effective:

- Rear tire chains
- Rear wheel weights
- Rear frame weight
- Auxiliary weight (used only with rear frame weight)

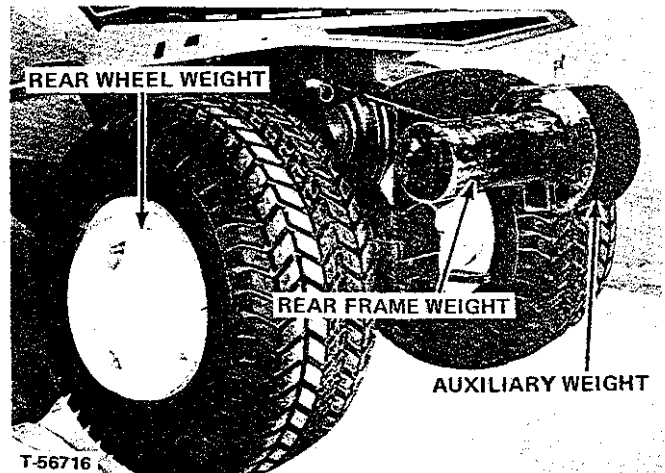


FIGURE 8

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SETTING UP INSTRUCTIONS

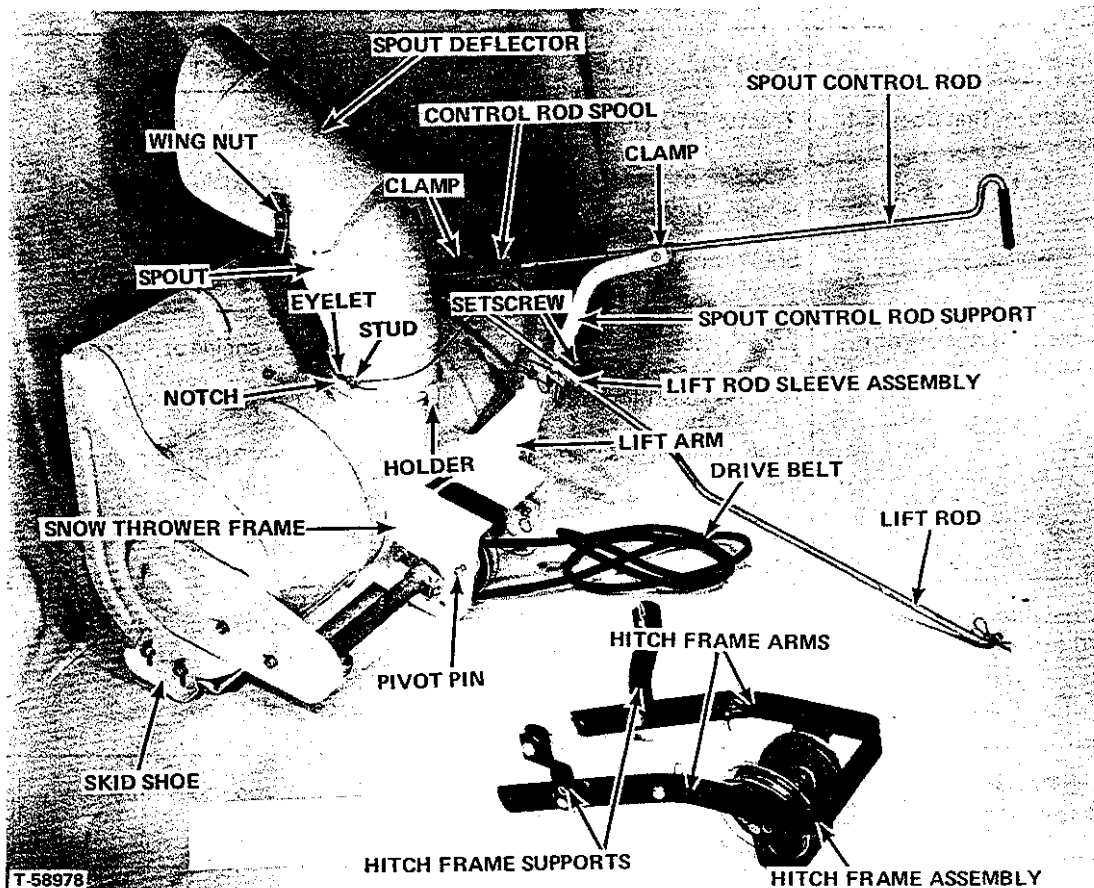


FIGURE 9

1. Bolt the lower hole in hitch frame supports to the rear of the set of 2 holes in the middle of hitch frame arms. Leave locknuts on bolts loose enough that supports can be rotated - (Figure 9).
2. Bolt the spout control rod support to the right hand side of snow thrower frame - (Figures 9 and 10).
3. Install spout control rod into bearing located on right hand front of snow thrower housing. Install one cotter pin in control rod on each side of bearing. Place clamp over spout control rod and bolt it to control rod support. Use locknut on bolt and tighten it just tight enough to create a slight drag on spout control rod when it is rotated. This is to prevent undesired rotation of spout while operating the snow thrower. (Figures 9 and 10)
4. Place a thin coating of light grease on the snow thrower housing outlet flange where spout contacts housing when in working position. Rotate spout until notch lines up with holder on snow thrower housing. Slip spout down over end of housing discharge until it rests on outlet flange. Rotate the notch away from holder - (Figure 9).
5. Place deflector over spout, install two carriage bolts through holes in spout and deflector. Place large star washer between the deflector and the spout with the cupped side of washer toward the spout. Place the flat washers and wing nuts on the outside of deflector. Tighten wing nuts.
6. Attach clamp containing spout control cable onto control rod spool with screw. Wrap cable with eyelet on end around front portion of control rod spool about 2 turns. Pass cable around front of spout and hook eyelet over stud and place flat washer over eyelet. While holding back lightly on the left side of deflector, revolve spout control rod clockwise (while facing forward) to tighten front part of cable. Continue to turn spout control rod until spout is turned to point exactly straight forward.
7. Count the number of turns of front cable on the

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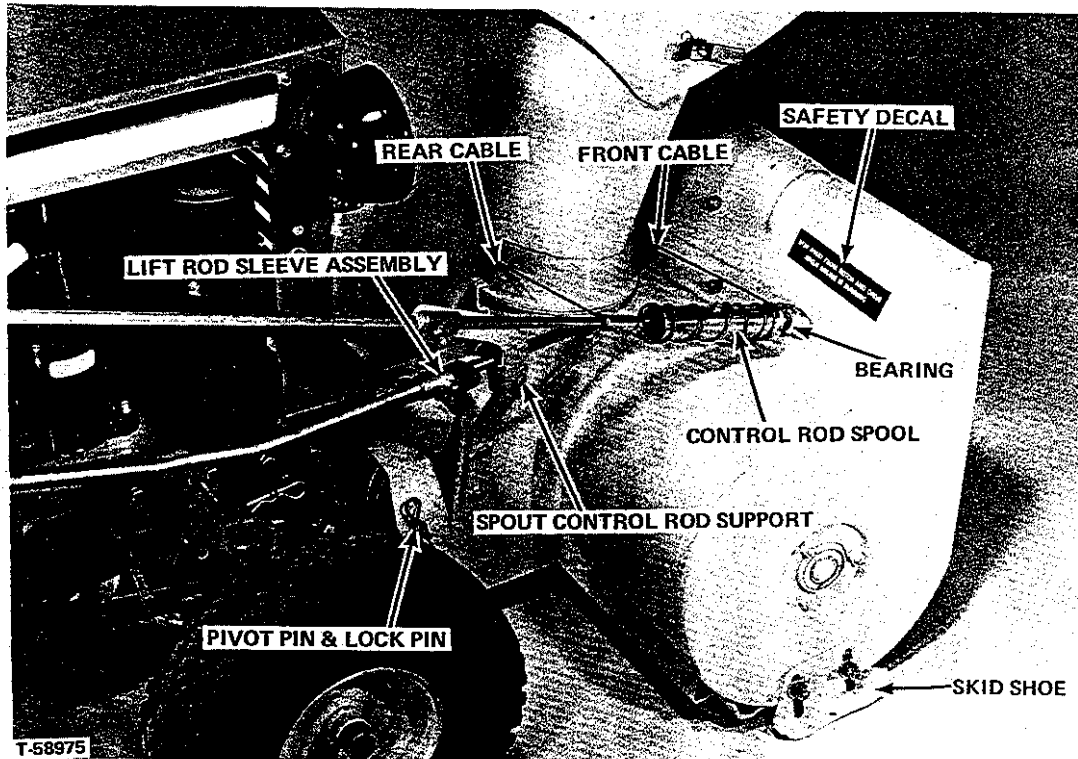


FIGURE 10

control rod spool. Wrap the rear part of cable around the rear of control rod spool with the same number of turns. Pass end of rear cable around back of spout and loop it around stud outside of flat washer. Place cupped washer with the cut out side over the looped end of cable and hold in place with lockwasher and nut. While holding the spout pointing straight front, pull the cable end tight with a pair of pliers, turn cupped washer so that the rear cable end enters and leaves through the cut out portion of washer. Tighten nut securely.

8. Check that spout travels equal angles when control rod is turned to full right and full left positions. If not, rewind the cable so that both front and rear portions have exactly the same number of turns when the spout is pointing straight forward.
9. To mount snow thrower to tractor see **ATTACHING TO TRACTOR** in front of this manual.

PREPARATION OF TRACTOR (Figure 11)

1. Replace the R.H. front PTO idler on the tractor with the new idler that comes with the snow thrower.
2. Also replace the belt guide with the new one supplied.

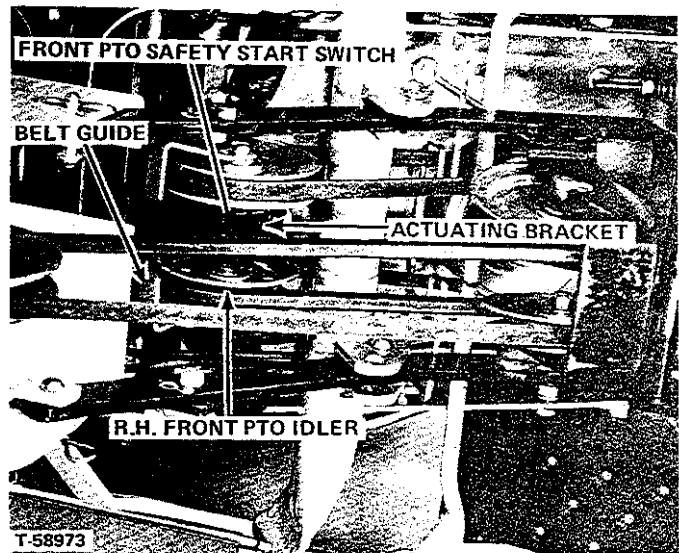


FIGURE 11 - View from Under Tractor

3. Be sure to reinstall the actuating bracket on the inside of the idler as shown in Figure 11. Refer to Front PTO Safety Start Switch in the tractor adjustment section for direction for adjusting the actuating bracket.
4. The new idler may be left in place and used for other implements driven from the front PTO drive.