Owner's Manual

932000 Series
Compact Sno-Thros

Model 932001 (ST270) 2.7 HP
Serial no. 042101 and up

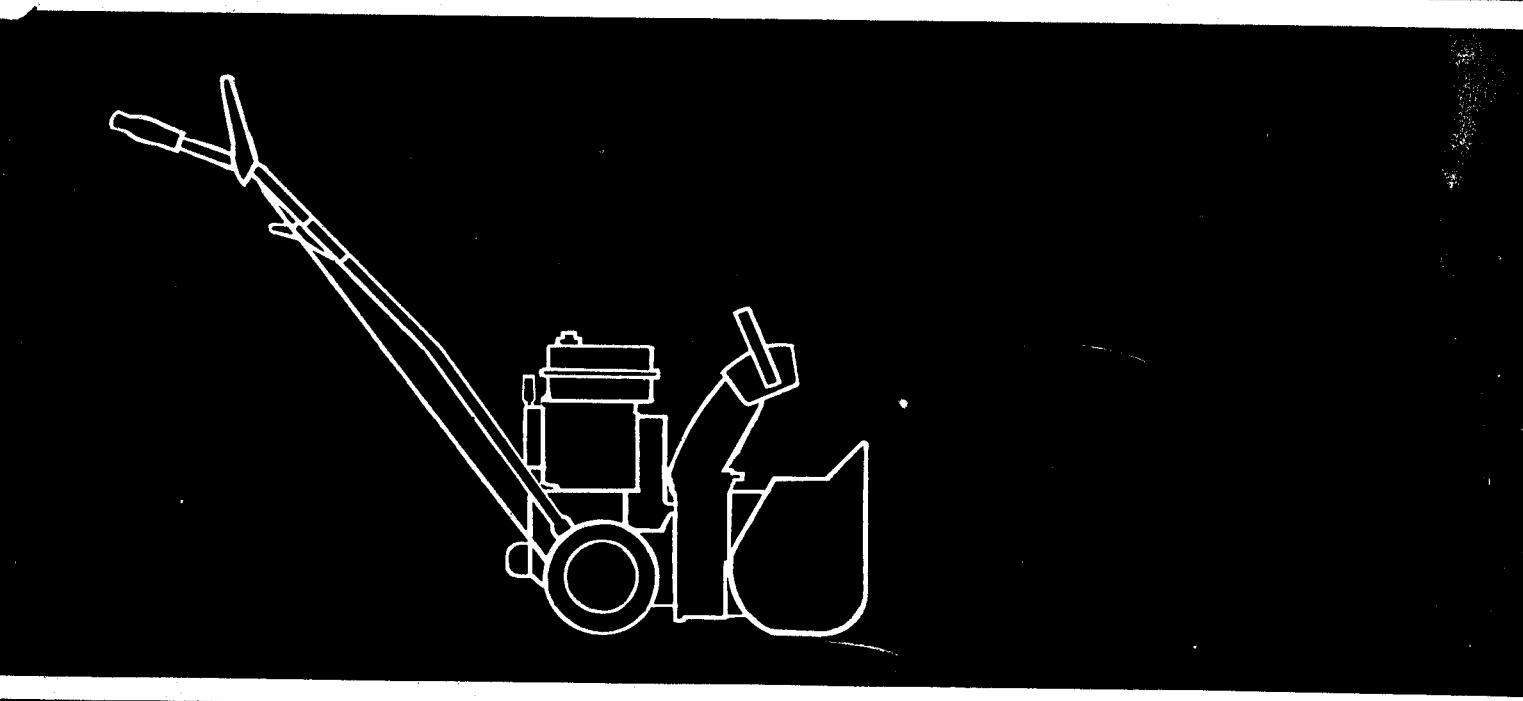
Model 932004 (ST350) 3.5 HP
Serial no. 030101 and up

Model 932006 (ST504) 5 HP
Serial no. 049501 and up

Model 932007 (TT5) 5 HP
Serial no. 001101 and up

Including:

Model 832003 — 24" Sno-Thro
Serial no. 049101 and up



Ariens

Ariens Company
655 West Ryan Street
Brillion, Wisconsin 54110

Part No. 32078C
Printed in U.S.A. 11-82

INSTRUCTIONS FOR SAFE OPERATION

TRAINING

1. Read the Owner's Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the Sno-Thro and disengage the controls quickly.
2. Never allow children to operate the Sno-Thro. Never allow adults to operate the Sno-Thro without proper instruction.
3. Keep the area of operation clear of all persons, particularly small children, and pets.
4. Exercise caution to avoid slipping or falling, especially when starting or operating in reverse.

PREPARATION

1. Thoroughly inspect the area where the Sno-Thro is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
2. Disengage all clutches before starting the engine (motor).
3. Do not operate the Sno-Thro without wearing adequate winter outer garments and eye protection such as safety glasses. Wear footwear which will improve footing on slippery surfaces.
4. Handle fuel with care; it is highly flammable.
   a. Use an 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.
5. Use the power cord furnished with the electric starter, if so equipped.
6. Adjust the blower housing height to clear gravel or crushed rock surface with engine off.
7. Never attempt to make any adjustments while the engine is running (except where specifically recommended by manufacturer).
8. Let engine and machine adjust to outdoor temperatures before starting to clear snow.

OPERATION

1. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
3. After striking a foreign object, stop the engine, remove the wire from the spark plug, thoroughly inspect the Sno-Thro for any damage, and repair the damage before restarting and operating the Sno-Thro.
4. If the Sno-Thro should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
5. Stop the engine whenever you leave the operating position, before unclogging the blower/impeller housing or discharge guide, and when making any repairs, adjustments, or inspections.
6. When cleaning, repairing, or inspecting, make certain the blower/impeller and all moving parts have stopped. Disconnect the spark plug wire.
7. Do not run the engine indoors, except when starting the engine and for transporting the Sno-Thro in or out of the building. Open the outside doors; exhaust fumes are dangerous.
8. Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
9. Never operate the Sno-Thro without proper guards, plates, or other safety protective devices in place.
10. Never operate the Sno-Thro near glass enclosures, automobiles, window wells, drop-offs, etc., without proper adjustment of the snow discharge angle. Keep children and pets away.
11. Do not overload the Sno-Thro capacity by attempting to clear snow at too fast a rate.
12. Never operate the Sno-Thro at high transport speeds on slippery surfaces. Use care when backing.
13. Never direct discharge at bystanders or allow anyone in front of the unit.
14. Disengage power to the blower/impeller when Sno-Thro is transported or not in use.
15. Use only attachments and accessories approved by Ariens.
16. Never operate the Sno-Thro without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.

MAINTENANCE AND STORAGE

1. Check shear bolts, engine mounting bolts, etc., at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
2. Never store the Sno-Thro with fuel in fuel tank inside a building where iginition sources are present such as hot water and space heaters, clothes dryers, etc. Allow the engine to cool before storing in any enclosure.
3. Always refer to Owner's Manual for important details if the Sno-Thro is to be stored for an extended period.
4. Run the Sno-Thro a few minutes after throwing snow to prevent freeze-up of the blower/impeller.

CONTENTS

THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY INFORMATION IN THIS MANUAL. WHEN YOU SEE THE SYMBOL BE ALERT TO THE POSSIBILITY OF INJURY AND CAREFULLY READ THE INFORMATION THAT FOLLOWS.

WARNING

ROTATING PARTS
Stop engine and remove spark plug ignition wire before removing obstructions.

WARNING

MUFFLER & ADJACENT AREAS MAY EXCEED 150°F.

WARNING

ROTATING PARTS
Keep clear of collector rakes while engine is running

BE AWARE OF SAFETY DECALS

CAUTION: DO NOT PUT YOUR HAND INTO THE DEFLECTOR OR CHUTE. USE THE HANDLE PROVIDED TO ADJUST THE CHUTE DEFLECTOR TO DESIRED HEIGHT.

CAUTION: A HIGH SPEED IMPELLER (FAN) ROTATES INSIDE HOUSING TO THROW THE SNOW. NEVER REACH OR PUSH ANY OBJECT INTO THE DISCHARGE CHUTE OR DELFECTOR TO REMOVE ANY MATERIAL WITH THE SNO-THRO RUNNING.

IMPORTANT: CHECK FOR FROZEN IMPELLER (FAN) BEFORE STARTING ENGINE. IF FAN IS FROZEN, FREE IT BY THAWING THE SNO-THRO IN A HEATED BUILDING. THE BEST METHOD IS TO PREVENT FREEZING BY ALLOWING THE BLOWER TO RUN FOR A SHORT TIME AFTER SNOW THROWING TO ALLOW SLUSH AND WATER TO BLOW OUT.

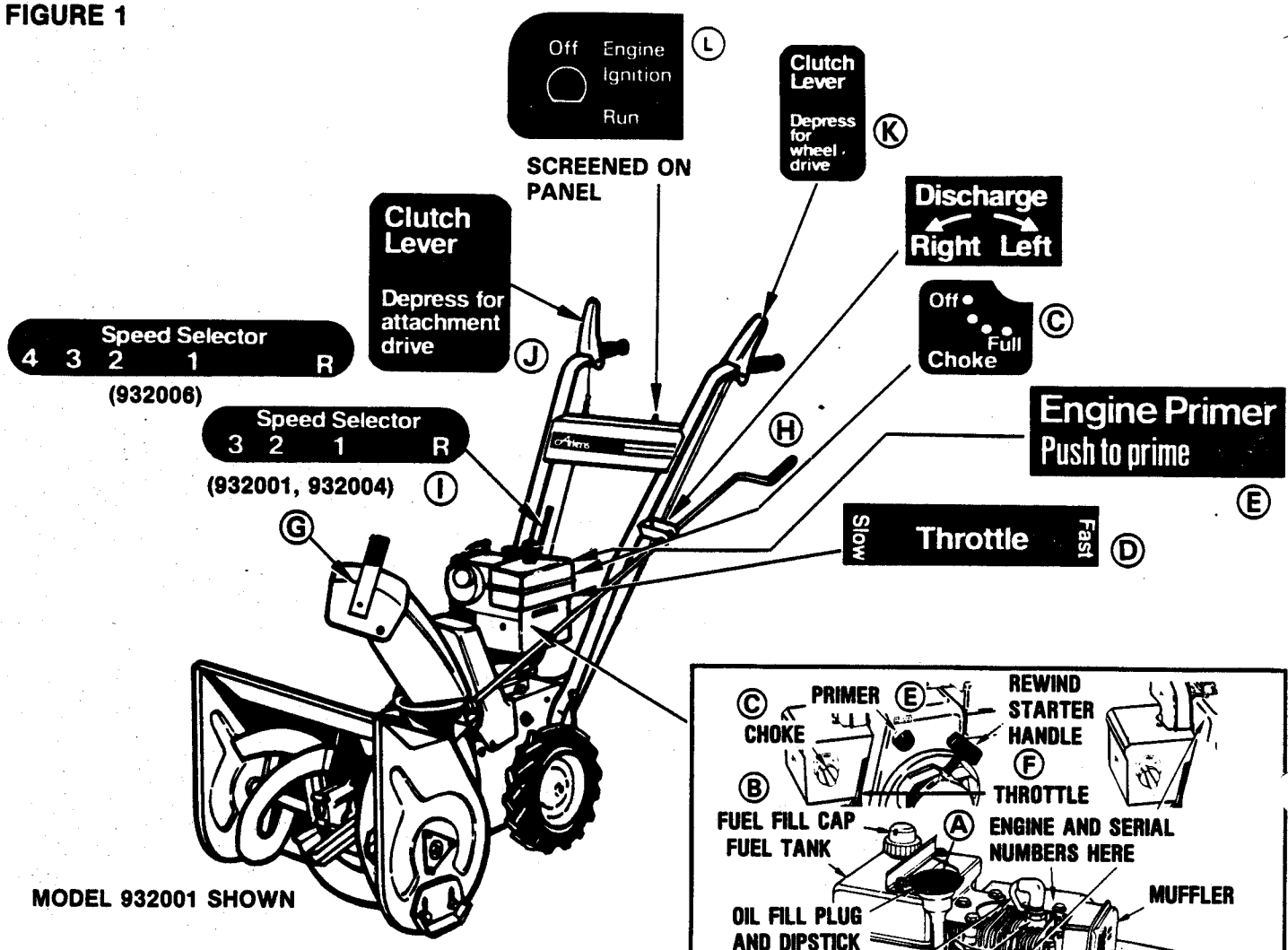
CAUTION: KEEP HANDS, FEET AND OBJECTS EXCEPT SNOW OUT OF THE AUGER.

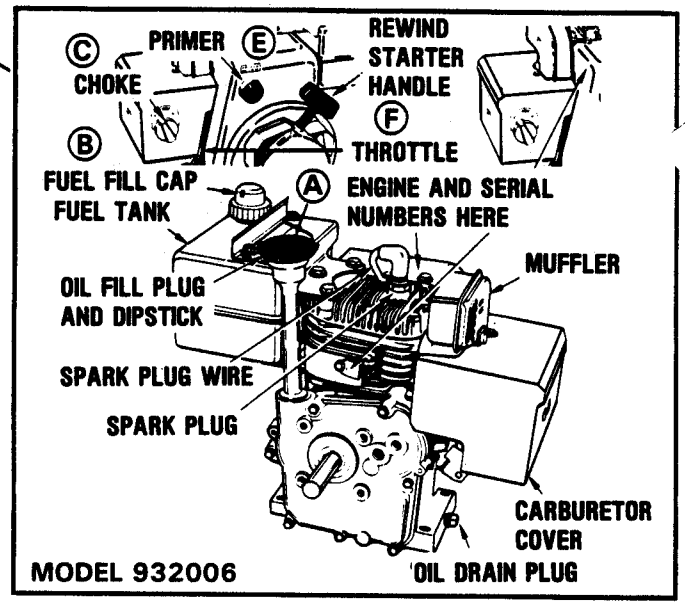
CAUTION: WET SNOW TENDS TO INCREASE THE CHANCE OF CLOGGING AND TO DECREASE THE DISCHARGE DISTANCE. IF A CLOG OCCURS, STOP ENGINE, REMOVE SPARK PLUG WIRE, AND TURN DISCHARGE CHUTE TO RIGHT. POKE OUT WET SNOW WITH A BROOM HANDLE, STICK OR SIMILAR OBJECT. IF AN OBSTRUCTION BECOMES LODGED IN IMPELLER OR AUGER USE THE BROOM HANDLE (NOT YOUR HANDS!) TO PUSH AND ROTATE THE IMPELLER BACKWARDS (COUNTER-CLOCKWISE) VIEWED FROM OPERATOR POSITION) AND CLEAR CLOG. IF THIS IS UNSUCCESSFUL, REMOVE DISCHARGE CHUTE FOR ACCESS TO CLOG. YOUR ARIENS DEALER CAN PROVIDE FURTHER ASSISTANCE.

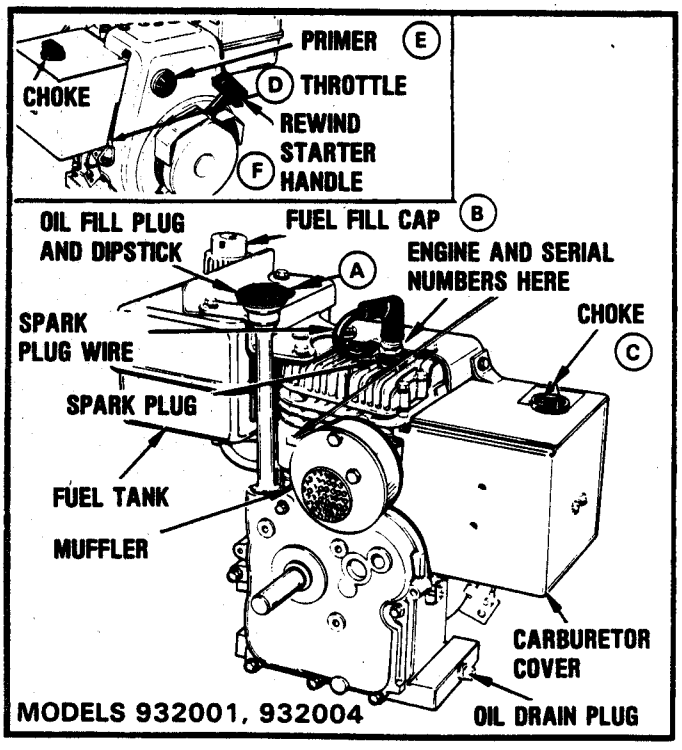
NOTE: THIS PRODUCT IS EQUIPPED WITH AN INTERNAL COMBUSTION TYPE ENGINE. DO NOT USE UNIT ON OR NEAR ANY UNIMPROVED, FOREST-COVERED OR BRUSH-COVERED LAND UNLESS THE EXHAUST SYSTEM IS EQUIPPED WITH A SPARK ARRESTER MEETING APPLICABLE LOCAL, STATE OR FEDERAL LAWS. A SPARK ARRESTER, IF IT IS USED, MUST BE MAINTAINED IN EFFECTIVE WORKING ORDER BY THE OPERATOR. SEE YOUR ARIENS DEALER OR ENGINE MANUFACTURER'S SERVICE CENTER.

OPERATION

FIGURE 1







OPERATION

BEFORE STARTING — FIGURE 1

IMPORTANT: REVIEW THE CONTROL AND COMPONENT LOCATIONS AND DECALS ON YOUR SNO-THRO AND SHOWN IN FIGURE 1. READ AND REFER TO THE ENGINE INSTRUCTIONS PROVIDED.

1. Fill crankcase with oil. Refer to Engine Instructions Manual supplied with Sno-Thro. (A)
2. Add unleaded or leaded regular gas. Do not mix oil with gasoline. (B)

CAUTION: MAKE VISUAL CHECKS WITH REGARDS TO SAFETY PRECAUTIONS SUCH AS OUTLINED ON PAGE 2.

TO START — FIGURE 1

1. Turn key to "RUN" position. (L)
2. Move Choke Knob to "FULL" choke position. (C)

NOTE: 932000 SERIES CHOKE CONTROLS ARE LOCATED ON THE ENGINE CARBURETOR COVER BOX.

3. Move Throttle to "FAST" position. (D)
4. Push Primer Bulb two or three times when engine is cold. Below - 15° F additional priming may be required. (E)
5. Turn Discharge Chute (H) to left before starting. Pull Rewind Starter. (F)
   a. Pull rope out slowly until the engine reaches the start of the compression cycle. (The rope will pull slightly harder at this point.)
   b. Let the rope rewind slowly.
   c. Pull the rope with a rapid full arm stroke. Let the rope rewind slowly — do not let the rewind handle snap.

NOTE: IF YOUR SNO-THRO IS EQUIPPED WITH AN ELECTRIC STARTER, REFER TO THE INSTRUCTIONS PROVIDED WITH THE STARTER.

6. When the engine starts move the Choke Knob gradually to the "OFF" position, from 3/4, to 1/2, to "OFF". If engine falters move Choke Knob immediately to "FULL" then gradually to "OFF". (C)

NOTE: TO START A WARM ENGINE DISREGARD STEP 3 (MOVE CHOKE "OFF"), DISREGARD STEP 5 (DO NOT PUSH PRIMER).

TO TRANSPORT (TRACTION DRIVE) — FIGURE 1

1. Move Speed Selector to desired speed. (I)
2. Press down on the top of the handlebars enough to raise the front of the Sno-Thro slightly off the ground.
3. Depress Traction Clutch Lever to transport. (K)

TO OPERATE — FIGURE 1

1. Move Chute Deflector to desired height. (G)
2. Turn Hand Crank to direct Discharge Chute. (H) Direct snow away from area to be cleared; the chute will adjust to 220° turn.
3. Move Speed Selector to desired speed. (I)
4. Depress Attachment Clutch Lever to engage snow throwing. (J)

IMPORTANT: IF THE IMPELLER (FAN) IS FROZEN OR RUSTED, THE BLOWER ATTACHMENT WILL NOT FUNCTION CAUSING POSSIBLE DAMAGE TO BLOWER BELT AND DRIVE COMPONENTS. BE CAREFUL TO GRADUALLY ENGAGE ATTACHMENT CLUTCH LEVER.

5. Depress Traction Clutch Lever to drive the Sno-Thro wheels. (K)

NOTE: BOTH HANDLEBAR CLUTCH LEVERS MUST BE DEPRESSED TO OPERATE AND BLOW SNOW.

TO STOP — FIGURE 1

1. Release Traction Clutch Lever. (K)
2. Except for emergency stops, allow the Sno-Thro Attachment Clutch to be engaged and the engine run for a short time to throw out slush and water and prevent freezing of the fan.
3. Release Attachment Clutch Lever. (J)
4. Turn key to "OFF" position. (L)
5. Move Choke Knob to "FULL" position. (C)
6. Move Throttle to "FAST" position. (D)

OPERATING TIPS

1. Snow is best removed as soon as possible after snow fall.
2. To clear an area properly run the Sno-Thro in an overlapping series of paths. For large areas start in the middle and blow snow to each side so it doesn't have to be moved more than once.
3. Snow should be discharged with the direction of wind whenever possible. Do not blow snow any higher than necessary.
4. Chemicals used to melt ice and snow may damage the finish of your Sno-Thro. When possible, wipe the Sno-Thro clean with a rag (use of automotive wiper washer fluid may be applied) to remove residue.

ADJUSTMENTS / MAINTENANCE

Ariens Company recommends that you have adjustments made by your local **Ariens dealer.** He has the tools and know-how to properly perform these maintenance adjustments which may be required to keep the Sno-Thro operating at peak efficiency. The Sno-Thro is equipped with the finest quality engine obtainable. However, should servicing be required, it can be obtained from an **Ariens dealer** or an authorized engine manufacturer's service station. Should you decide to make adjustments on your Sno-Thro yourself, Ariens recommends that you call your dealer for the answers to any questions that might arise in performing this work.

SHEAR BOLT REPLACEMENT — FIGURE 2

Occasionally an object may enter the blower and jam the rakes. When this occurs, the shear bolts securing the rakes to the shaft will break and allow the rake to turn freely on the shaft preventing damage to the gear drive. When this happens, turn off the engine, remove wire from spark plug, remove the broken shear bolt and replace with a new ARIENS shear bolt. Use of any other type of shear bolt may result in severe damage to the machine. USE ONLY ARIENS SHEAR BOLTS FOR REPLACEMENT. Each time a shear bolt is replaced (and once each year) the rake should be rotated on the shaft and the shaft lubricated. Refer to "LUBRICATION" section.

RUNNERS AND SCRAPER BLADE — FIGURES 2 & 3

The runners on each side of the blower housing, and the scraper blade, along the bottom of the housing, are all adjustable to suit conditions. Raising or lowering the runners controls the distance the scraper blade is held above the surface being cleared. Runners are adjusted by loosening the two nuts securing each runner. Move the runner to the desired position and retighten the nuts. Be sure to adjust both runners to the same height to keep blower housing level. Uneven runners make the machine difficult to steer and will result in an uneven clearing job.

Adjustment of the runners is critical to good cleaning. If the machine is to be used on a gravel surface lower the runners so the blower will not pick up gravel. After the remaining snow is packed down, the runners may be raised for close scraping. On smooth concrete or blacktopped surfaces, the runners may be raised so the scraper blade rests on the surface and scrapes clean.

The runners may be removed from the blower housing and reinstalled in upside-down position to reduce contact area and thus reduce tendency to ride up when clearing hard-packed snow.

The scraper is adjustable so it may be lowered to compensate for wear. See Page 12 illustration. Loosen locknuts securing scraper blade to adjust. Retighten locknuts. If the blade is allowed to wear down too far the blower housing may be damaged.

ATTACHMENT CLUTCH ADJUSTMENT — FIGURES 4 & 5

The Attachment Clutch is adjusted by connecting the spring on the clutch rod into the proper link on the Clutch Lever. Properly adjusted, the spring should be slightly extended with the clutch lever down. This should occur without the Attachment Activator Lever touching the hub. If the Activator Lever touches the hub, the attachment idler (Figure 9) must be adjusted in the idler arm. Loosen the cap screw on the idler and move idler IN TOWARD the belt. Readjust the spring in the chain for proper action.

Make sure that all linkage works freely so that blower idler snaps quickly and freely to disengaged position when Attachment Clutch Lever is released. Make sure that the blower impeller (fan) comes to a quick (5 seconds) stop when Attachment Clutch Lever is released.

NOTE: SEE, ALSO, "ASSEMBLY AND PRE-SERVICE" SECTION OF THIS MANUAL.

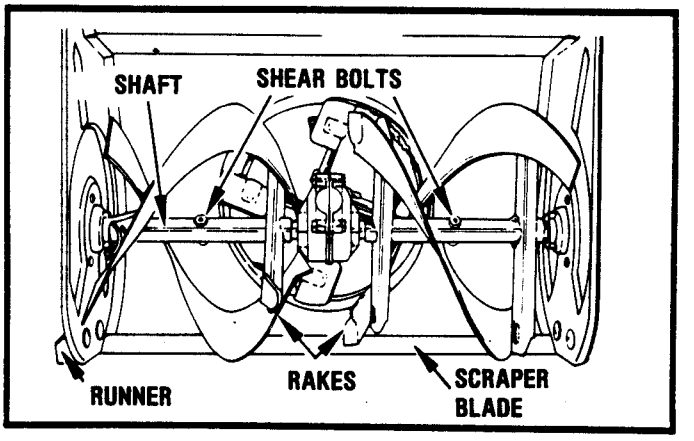


FIGURE 2

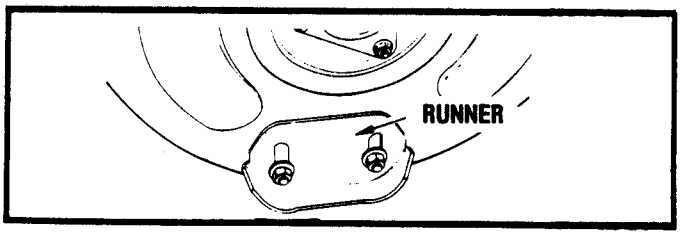


FIGURE 3

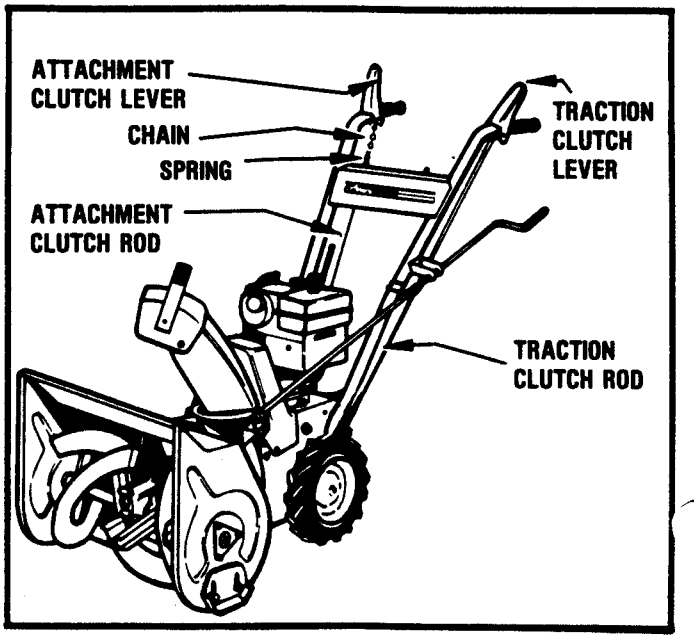


FIGURE 4

CHUTE CRANK ADJUSTMENT — FIGURE 6

In the event the chute crank fails to rotate smoothly, loosen the nut securing the worm clevis to the bracket. This hole in the bracket is slotted to permit adjustment. Position the worm so there is a little clearance between worm and the gear teeth on the blower. Tighten the nut. Rotate the discharge chute through its full travel to see that it turns easily. Readjust if required. Lubricate as described in "LUBRICATION" section for smooth operation.

TRACTION CLUTCH ADJUSTMENT — FIG. 5, 7 & 13B

The only adjustment for the drive disc is made by adjusting the length of the traction clutch rod. Loosen setscrew in the rod adapter and allow clutch lever to lay down on handle grip. Shift Speed Selector to third gear. Raise rod adapter bracket until it clears the top of the slot in frame by 1/16" and tighten setscrew. See Figure 13B

Check for proper adjustment by removing the bottom cover and measuring the space between the roll pin and bracket on the traction rod. This space must be 1/8 - 3/16" with clutch lever engaged, for proper operation. See Figure 7.

REPLACEMENT OF FRICTION WHEEL — FIGURE 7

1. Adjust fuel tank level to prevent spilled gasoline. Tip the machine up on the blower housing and brace securely. Remove two cap screws at back of frame securing the bottom cover and loosen two cap screws at front frame sides and remove the cover.
2. Remove the four whizlock nuts holding the bearing flange on the right hand side of the frame. Remove the bearing flange and carriage bolts.
3. Remove the hairpin cotter from the traction clutch rod. Pull this rod from the clutch fork arm and tip it up and out of the way.
4. Slide the friction wheel assembly and hex shaft to the right until the left end of the hex shaft comes free of the left bearing. Then slip the whole assembly back to the left and pull it forward out of the frame.
5. With the friction wheel assembly out of the frame, the three cap screws holding the friction wheel to the hub may be removed and the friction wheel removed.
6. Position a new friction wheel on the hub and secure with the three cap screws. Tighten securely.
7. Slip the right end of the complete friction wheel assembly and hex shaft into the hole in the right side of the frame. Position the friction wheel hub in the forks. Be sure washers are in place on bearing flange pins. Slide the hex shaft to the left and into the left bearing being sure flat washer is in position. See that the pinion gear meshes with the large gear.

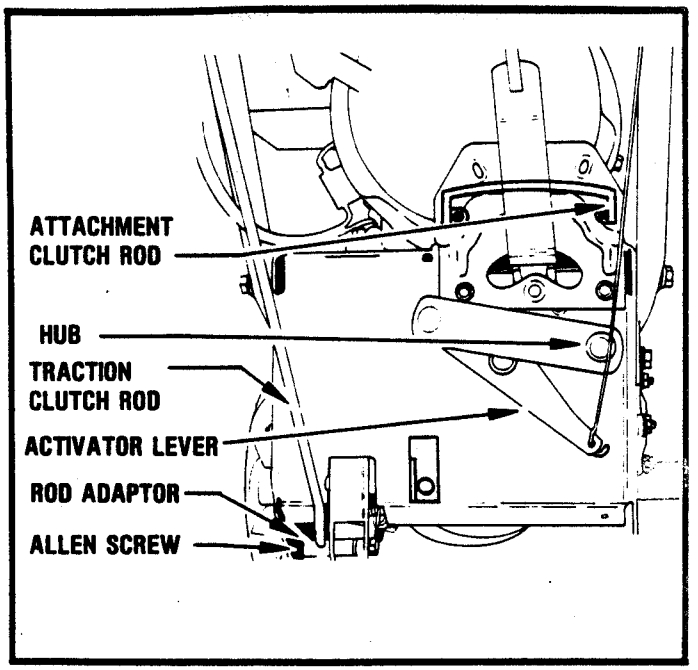


FIGURE 5

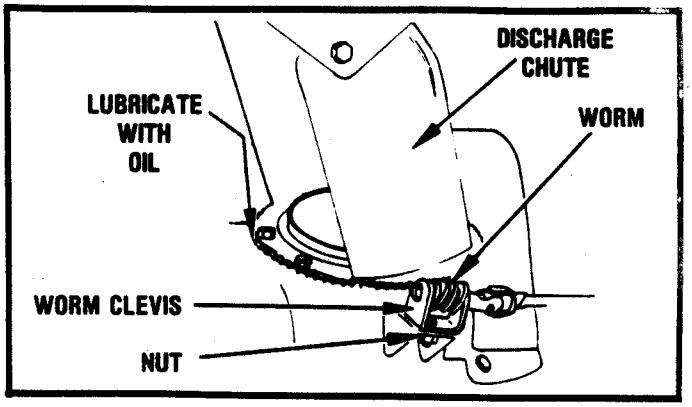


FIGURE 6

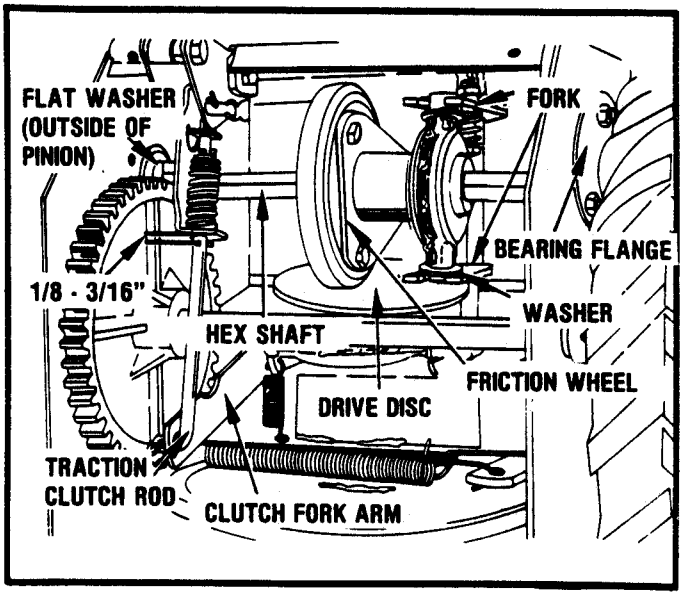


FIGURE 7

REPLACEMENT OF FRICTION WHEEL — CONTINUED

8. Replace the bearing flange on the right side of the frame and secure with the four carriage bolts and nuts. Reconnect the traction clutch rod in the clutch fork arm and secure with a hairpin cotter. Readjust the traction clutch as described in "TRACTION CLUTCH ADJUSTMENT" section.

BELT REPLACEMENT — GENERAL — FIGURES 8 & 9

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

The traction drive belt and the blower drive belt are both accessible by tipping apart the blower housing and tractor as follows:

1. Remove the nut and lockwashers holding the worm clevis on the bracket. Remove the chute crank by sliding it back in the bracket and out of the way.

2. Remove the two screws securing the belt guard to the tractor. Remove belt guard.

3. Remove the top screws and loosen the lower screws on each side that secures the blower housing to the frame. As the blower housing and tractor are tipped apart, roll the blower belt off the engine sheave between the sheave and belt finger. This can be easily done by pulling the recoil starter rope to rotate the engine sheave. See "CAUTION" note,this section. With the blower belt disconnected, the blower housing may then be tipped from the frame.

REPLACEMENT OF TRACTION DRIVE BELT — FIGURES 8 & 9

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

With the blower and tractor tipped apart, pull the idler away from the traction drive belt and remove belt from around the traction sheave and engine sheave. Install the new belt on the engine sheave and traction sheave. Then reposition the idler back into position on the outside of the traction drive belt.

With the belts in position and the idler in place, check the belt alignment. The engine sheave and the tractor sheave must align with one another. If the sheaves are not properly aligned, loosen the setscrews on the engine sheave and align the sheaves. Retighten the setscrews.

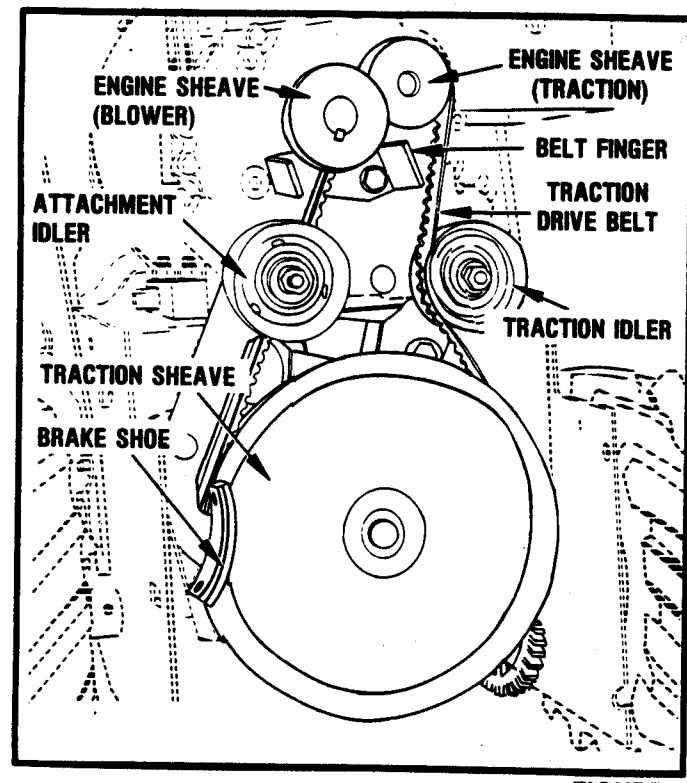


FIGURE 8

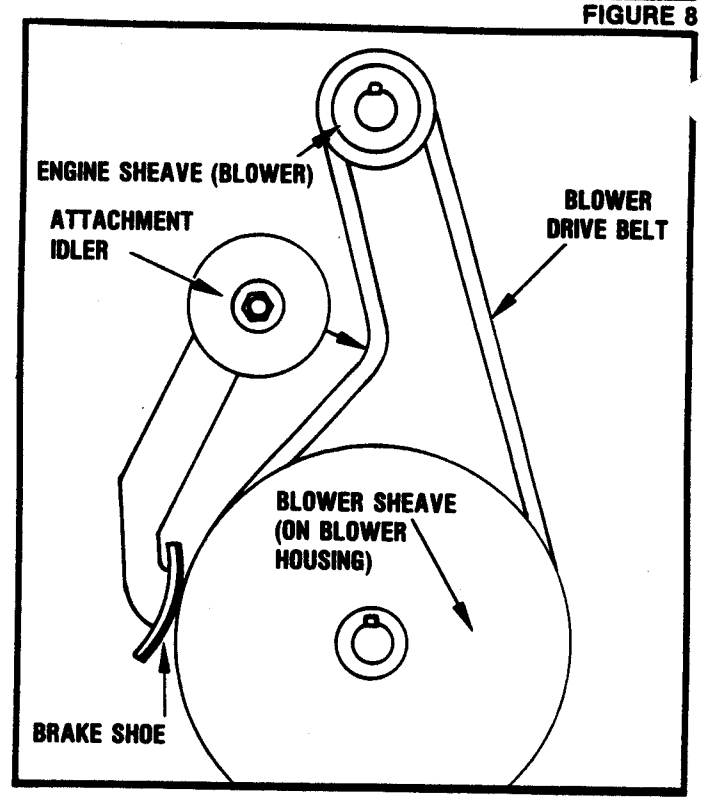


FIGURE 9

ADJUSTMENTS / MAINTENANCE

REPLACEMENT OF THE BLOWER DRIVE BELT — FIGURES 8 & 9

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

The blower drive belt is on the sheave on the blower housing. Remove and install the new belt on the sheave. Hold it in position on the sheave as the blower is tipped into position on the tractor. Be sure the brake shoe seats on the belt as the units are tipped together. Once assembled, roll the blower drive belt on to the engine sheave and position the idler on the outside of the belt. Align blower engine sheave and blower sheave (on blower housing) with attachment idler. If sheaves are not properly aligned, loosen setscrews on the blower engine sheave and blower sheave (on blower housing) and align with attachment idler. Retighten setscrews. Readjust Attachment Clutch per instructions on page 6.

REPLACEMENT OF BLOWER HOUSING — FIGURES 8 & 9

CAUTION: SINCE REPLACING THE BELTS WILL INVOLVE TURNING THE ENGINE OVER WITH THE STARTER, AND THE ENGINE MIGHT ACCIDENTALLY START RESULTING IN INJURY, THE SPARK PLUG WIRE MUST BE DISCONNECTED DURING THIS PROCEDURE.

1. Tip the blower and tractor together. Hold the blower drive belt up as the units are tipped together. Be sure the blower brake shoe seats on the blower sheave. Secure with the two cap screws into the frame.
2. Roll the blower belt on to the engine sheave. Pull the recoil starter rope to turn the engine sheave and roll the belt into place under the belt finger.
3. Check the belt finger spacing. There should be 1/8 inch clearance between the belt finger and belt with the attachment clutch engaged. Readjust the belt finger if required.
4. Check the sheave alignment with the blower belt in place. Readjust as required to align the sheaves. It may be necessary to tip the blower housing away from the tractor to gain access to the blower sheave. Replace blower housing by reversing the instructions found in "BELT REPLACEMENT — GENERAL" section on page 8.
5. Replace the belt guard and chute crank assemblies. Readjust the chute crank as described in "CHUTE CRANK ADJUSTMENT" section. Replace the spark plug wire.

STORAGE

WARNING: NEVER STORE PRODUCT IN AN ENCLOSED AREA WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK, OR PILOT OF FURNACE, ETC. DRAIN FUEL OUTDOORS, AWAY FROM OPEN FLAME, AND USE ONLY AN APPROVED FUEL CONTAINER.

ENGINE

Refer to Engine Manufacturer's Instructions supplied with the product.

GENERAL

Store Sno-Thro in a cool, dry place.

Inspect Sno-Thro for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when beginning use again.

Lubricate Sno-Thro as described in "LUBRICATION" section of this manual.

Clean the Sno-Thro thoroughly. Touch up all unpainted and exposed areas with paint to avoid rust.

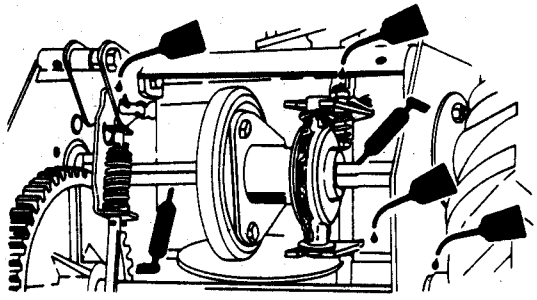
LUBRICATION

ENGINE

Fill Crankcase with oil as recommended in Engine Manufacturer's Instructions supplied with the product. Check oil level before each use and change oil regularly according to Engine Manufacturer's Instructions.

SNO-THRO TRACTION DRIVE — FIGURE 10

At the start of each operating season, grease the hex shaft as indicated in Figure 10. Put a few drops of oil on the Speed Selector linkage and other linkage points. Lubricate the bushings on the axle as indicated in Figure 10.



NOTE: BEFORE LUBRICATING THE BUSHINGS ON AXLE (BETWEEN THE WHEEL AND FRAME) BE SURE TO CLEAN THE INNER SURFACES OF THE BUSHINGS. REMOVE THE CAP SCREW (1) AND LOCKNUT (2). REMOVE WHEEL (3) FROM AXLE. CLEAN INSIDE OF BUSHING (4) AND ADD OIL TO INNER BUSHING SURFACE. REPLACE WHEEL.

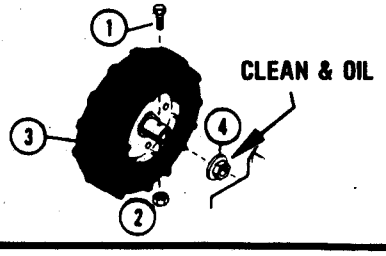


FIGURE 10

SNO-THRO UNIT — FIGURES 11 & 12

The blower gear case is lubricated with Ariens Liquid Grease (Part No. 000070). This grease will not flow at lower temperatures. It is therefore difficult to check the lubricant level. Best method for checking is to place the unit in a warm location overnight. This allows the grease to flow to level. Check the lubrication by removing the filler plug on the side of the gear case just above the left auger shaft. Lubrication should be even with the hole with the machine sitting level. It may be necessary to insert a wire into the hole to check level. The unit will not be damaged by over lubricating.

NOTE: OIL CAN (PUMP-TYPE) MAY BE USED TO LUBRICATE WITH ARIENS LIQUID GREASE.

Some models are equipped with zerk fittings on the rake shaft. See Figure 11B. For those models that do not have zerk fittings, oil rake shaft periodically or each time a shear bolt is replaced. At the end of the season, remove shear bolts, oil rake shaft through shear bolt holes, turn rakes on shaft several times and replace shear bolts. See Figure 11A.

On models equipped with zerk fittings on the rake shaft it will be necessary to re-grease the rake shaft zerk fittings provided each time a shear bolt is replaced and/or at the end of the season. Be sure to rotate the rakes on the shaft several times after applying grease. See Figure 11B.

Oil the Discharge Chute with several drops of oil See Figure 12. Rotate the Discharge Chute after applying oil to spread oil over the Discharge Chute gear teeth to prevent rust and provide smooth operation.

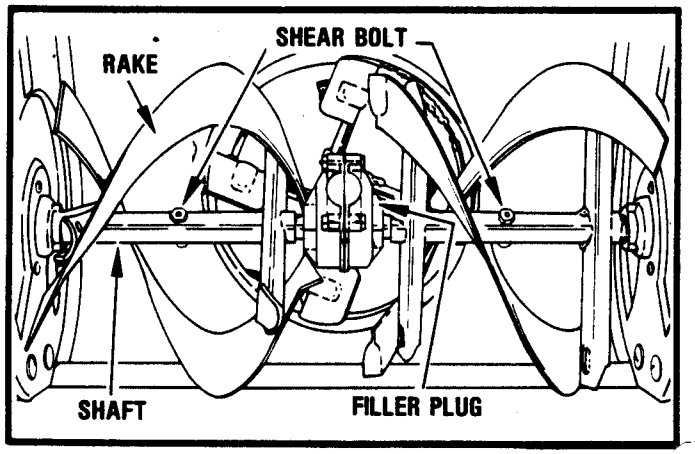


FIGURE 11A

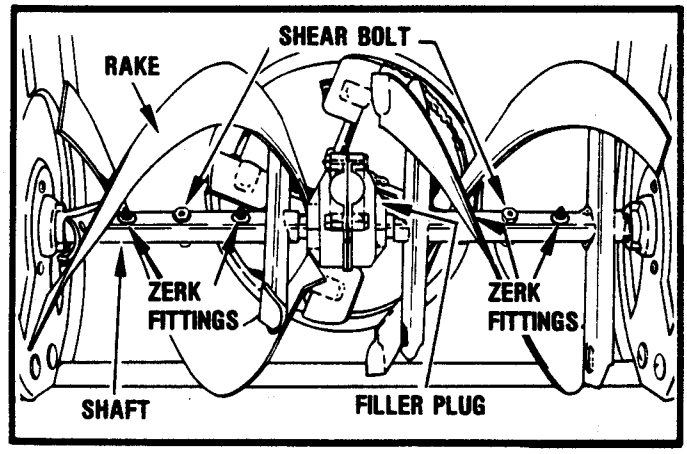


FIGURE 11B

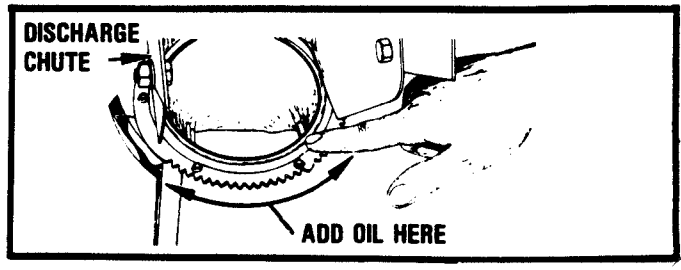


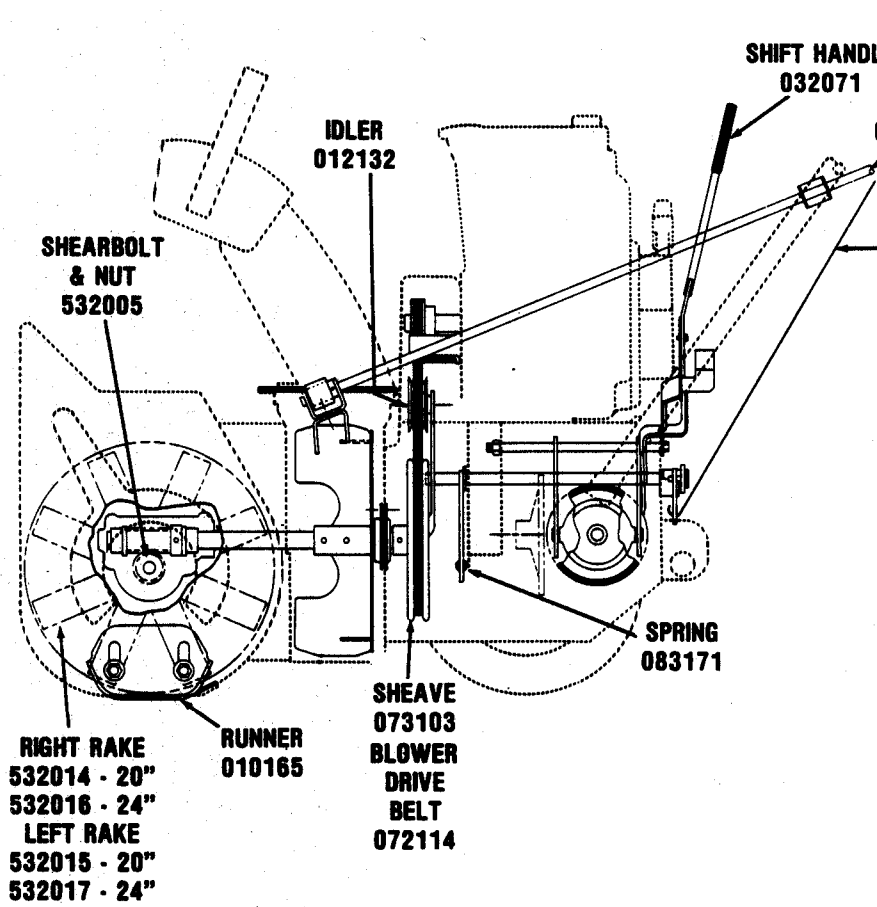
FIGURE 12

SNO-THRO SERVICE GUIDE

PROBLEM	POSSIBLE CAUSE	CORRECTION
Difficult starting, engine runs poorly.	1. Defective spark plug.	1. Replace spark plug, check connections of plug wire.
	2. Engine is not getting fuel.	2. Fill fuel tank; check and clean fuel line.
Engine stalls or looses power.	1. Choke is on after engine is warm.	1. Turn Choke Lever to "OFF".
	2. Impeller is blocked.	2. Turn off Sno-Thro, remove obstruction.
	3. Water in fuel.	3. Follow Engine Instructions to drain tank and refill.
Excessive vibration.	1. Loose hardware securing components.	1. Do not run unit. Stop and tighten all hardware, check for damage.
	2. Damage to unit.	2. See your Ariens dealer.
Sno-Thro will not move.	1. Traction Clutch is not adjusted correctly.	1. Adjust Clutch, see "ADJUSTMENTS-MAINTENANCE" section of Owner's Manual.
	2. Loose or damaged drive belt.	2. Replace belt - see "ADJUSTMENTS -MAINTENANCE" section.
Sno-Thro will not discharge snow.	1. Attachment Clutch is not adjusted correctly.	1. Adjust Clutch, see "ADJUSTMENTS-MAINTENANCE" section of Owner's Manual.
	2. Blower drive belt is loose or damaged.	2. Replace belt - see "ADJUSTMENTS -MAINTENANCE" section.
	3. Broken shear bolt.	3. Replace with Ariens shear bolt - see "ADJUSTMENTS-MAINTENANCE" section.
	4. Chute or auger is clogged.	4. Turn off Sno-Thro, remove clog.

BASIC CONSUMER-USER SERVICE COMPONENTS

NOTE: FOR ENGINE LUBRICATION AND PARTS SUCH AS AIR CLEANER AND SPARK PLUGS REFER TO ENGINE ENSTRUCTIONS MANUAL SUPPLIED WITH UNIT. CONTACT ENGINE MANUFACTURER'S DEALER FOR REPLACEMENTS.



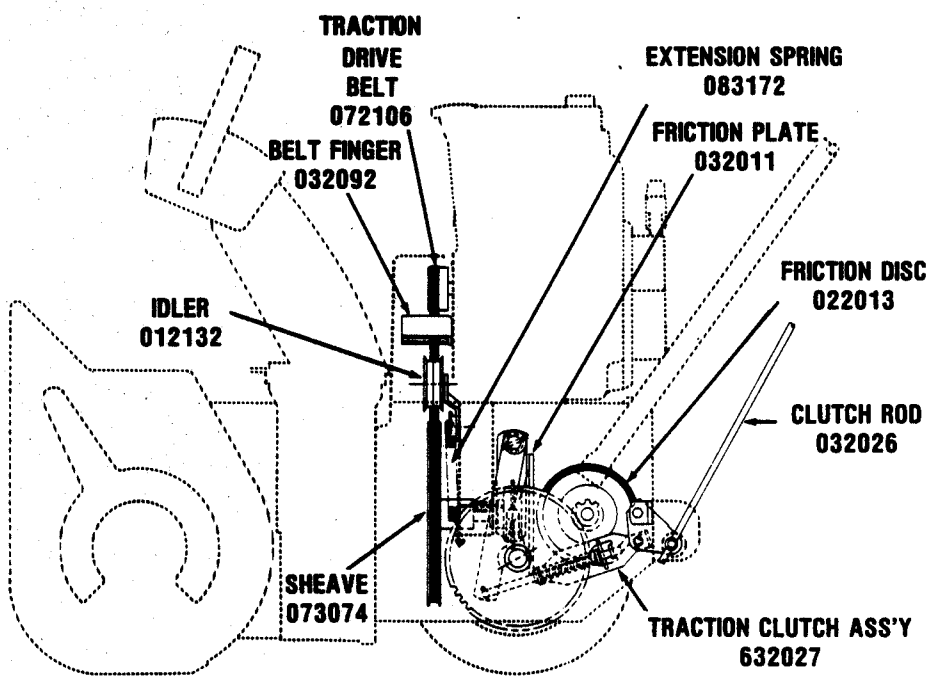
PARTS OR SERVICE MANUALS

Basic Consumer-User Service Components are illustrated on this page and are described in the text of this manual. These components are most commonly used for consumer repair.

Should a complete parts list and/or a repair manual less engine be required order under the following part numbers.

Parts Manual	**Part No. PM-32-82**
Repair Manual	**Part No. RM932-1982**
Please Request From:	**ArlensService** **655 West Ryan Street** **Brillion, WI 54110**

For engine parts list and repair instructions, contact the engine manufacturer's dealer.



OPTIONAL ACCESSORIES*:

Electric Starter, 722006
Slicer Bar, 710997
Homeowner's Kit, 732003
Tire Chains, 732001 for Model 932001; 732002 for Models 932004, 6

OPTIONAL ATTACHMENTS*:

Rotary Brush - 24''; 832001 (RB24)
Rotary Tiller, 832004 (RT20)

*Available at Extra Cost

WARNING: FAILURE TO FOLLOW ALL INSTRUCTIONS FOR ASSEMBLY AND PRE-SERVICE COULD RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE SNO-THRO. CHECK AND TEST THE FUNCTION OF ALL CONTROLS BEFORE STARTING ENGINE AND BE SURE TO FILL ENGINE WITH OIL.

WARNING: ALL ASSEMBLY AND ADJUSTMENT PROCEDURES ARE TO BE MADE WITH ENGINE STOPPED AND SPARK PLUG WIRE DISCONNECTED.

NOTE: MAKE SURE ALL SAFETY DEVICES AND GUARDS ARE IN POSITION AND OPERATING PROPERLY. READ THE OWNER'S MANUAL AND ITS INSTRUCTIONS FOR SAFE OPERATION BEFORE USING UNIT.

GENERAL

The unit is shipped with tractor and snow head assembled. The handlebars are assembled but must be installed, along with the clutch rods and chute crank.

HANDLEBAR INSTALLATION — FIGURE 13

The handlebars are attached to the holes in the side of the frame. Install a cap screw (59022, 3/4" long), a flat washer (64123) and lockwasher (63003) in the lower holes on each side of the handle and attach to the frame. Do not tighten. Insert a cap screw (59069, 1-1/4" long), a washer (64123) and lockwasher (63003) through each of the upper holes in the handlebars. Hold the handlebars up in a comfortable position and tighten all hardware. The handlebars are adjustable for customer use.

WIRING HARNESS — FIGURE 13

The wiring harness is supplied attached to the engine. Run this harness from the engine, up the left handlebar, to the key switch. Connect wire to terminals on the key switch; wires can be attached to either terminal. Secure the wiring harness to the left handlebar with clamp (69099).

TRACTION CLUTCH ROD — FIGURE 13

The traction clutch rod is shipped loose in the carton. To install the rod, place the Speed Selector in third speed; insert the bent end of the clutch rod into the hole in the clutch handle on the left handlebar. See Figure 13A. Insert the straight end of the clutch rod into the hole in the rod adapter in the clutch bracket at the left rear of the frame. See Figure 13B. Hold the clutch handle all the way down; raise the clutch bracket up to 1/16 inch of the frame; now tighten the rod in place with the setscrew in the rod adapter.

This adjustment can be checked by tipping Sno-Thro onto blower housing and removing bottom cover. To remove bottom cover, remove the two screws on each side of cover that mount it to the frame. With the clutch handle fully depressed the clearance between the roll pin and the bracket should be 1/8 inch to 3/16 inch. See Figure 13A. Loosen the setscrew and readjust if required.

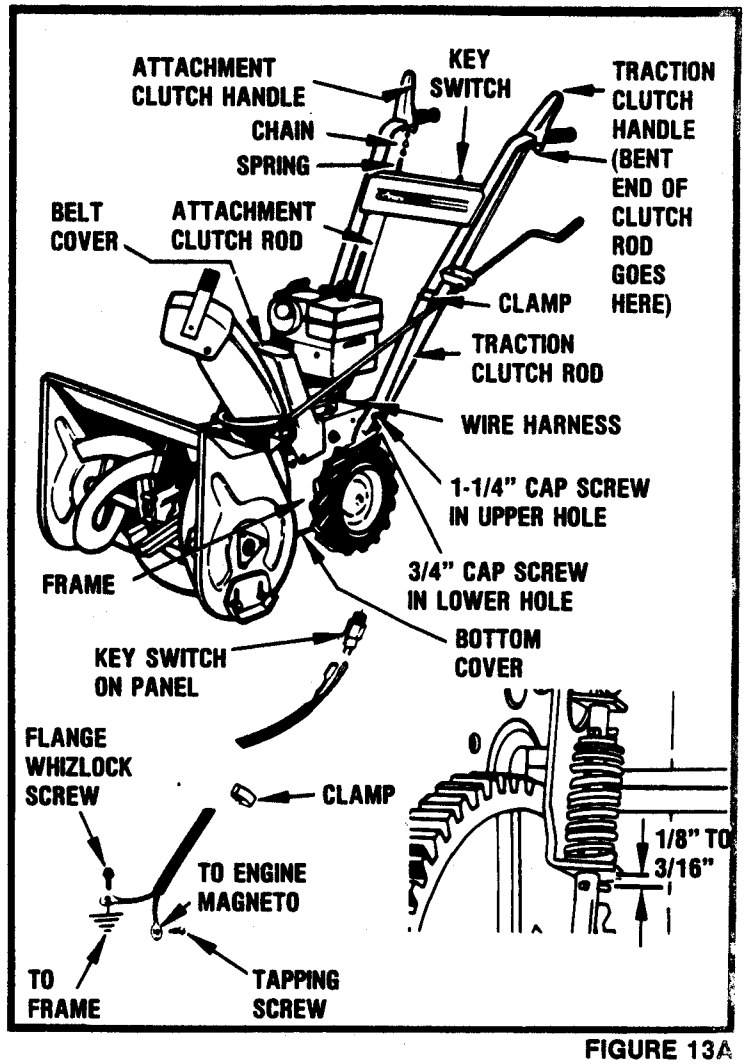


FIGURE 13A

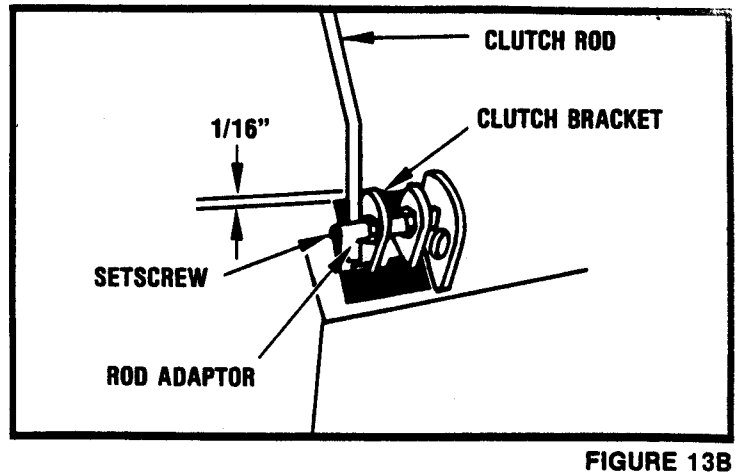


FIGURE 13B

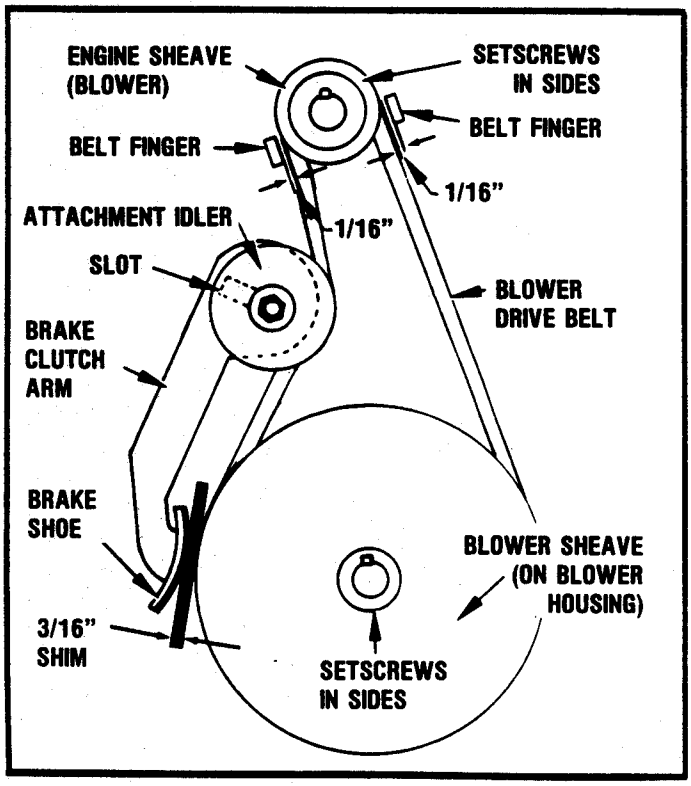


FIGURE 14

ATTACHMENT CLUTCH — FIGURES 14 & 15

a. Remove belt cover located in front of engine.

b. Check alignment of blower engine sheave and blower sheave with attachment idler. If sheaves are not aligned properly loosen the setscrews on the blower engine sheave and blower sheave, then align them with the blower idler. Retighten setscrews. See Figure 14.

c. Insert a 3/16'' thickness shim (use a 1'' wide flat stock) between the brake shoe and the attachment drive belt on the blower sheave. See Figure 14.

d. With the 3/16'' shim installed, adjust the attachment idler in the slot toward blower drive belt until it is just snug against belt. See Figure 14. Remove shim. Adjustment should be re-checked after completion of attachment clutch assembly.

e. Check and, if necessary, adjust the belt fingers so there is approximately 1/16'' clearance between attachment drive belt and belt fingers when attachment clutch is engaged. See Figure 14.

f. Check attachment clutch handle function. There should be total travel of handle down and up (to point of contact of handle center on handlebar) and free movement of the handle.

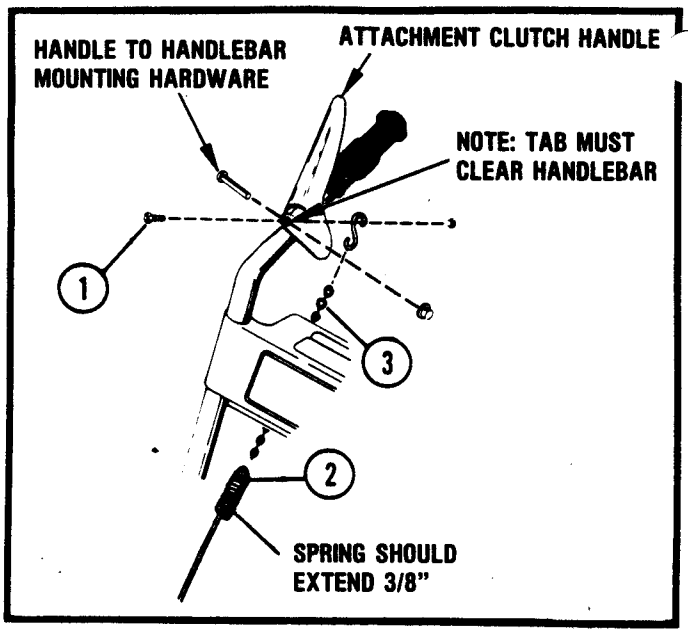


FIGURE 15A

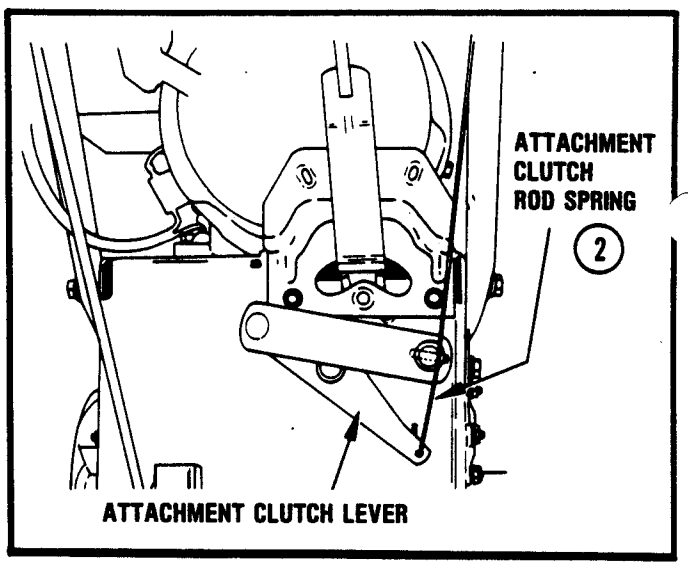


FIGURE 15B

g. Attachment clutch rod spring ② should be installed by hooking the end of the rod spring up through the hole in the Attachment Clutch Lever on the right rear of Sno-Thro frame. See Figure 15B. Connect the spring end of the attachment clutch rod spring to a link in the chain ③ on the attachment clutch handle as shown in Figure 15A. With the handle in the disengaged (up) position select a link that will allow the spring to stay slack (not extended) and will extend the spring a minimum of 3/8'' length when the handle is engaged (down position). When clutch is disengaged the brake shoe must engage the attachment drive belt on the blower sheave.

h. Check function of attachment clutch. The blower attachment must stop running within five (5) seconds

ATTACHMENT CLUTCH — CONTINUED

after attachment clutch handle is disengaged (up position). If this is not achieved, check blower idler adjustment according to paragraph "d" (attachment drive belt tension may be too tight) and belt finger adjustment (paragraph "e"). Reinstall belt cover.

CAUTION: PROPER FUNCTION OF ATTACHMENT CLUTCH CAN BE ASSURED ONLY WHEN THE PREVIOUS STEPS IN "ATTACHMENT CLUTCH" SECTION HAVE BEEN PERFORMED.

CHUTE CONTROL CRANK — FIGURE 16

The chute control crank is shipped fully assembled and in place in the bracket. Install as follows: Bolt the crank clamp in place on the left handlebar. See Figure 16.

Position the worm clevis on the bracket on the blower housing. Place external tooth lockwasher between worm clevis and bracket. Adjust in slot so that there is a little clearance between worm and gear teeth on blower collar.

Secure the worm clevis with the carriage bolt (already in place on the clevis). Use a lockwasher (63023) and a 5/16-18 nut (65015) under the bracket. See Figure 16.

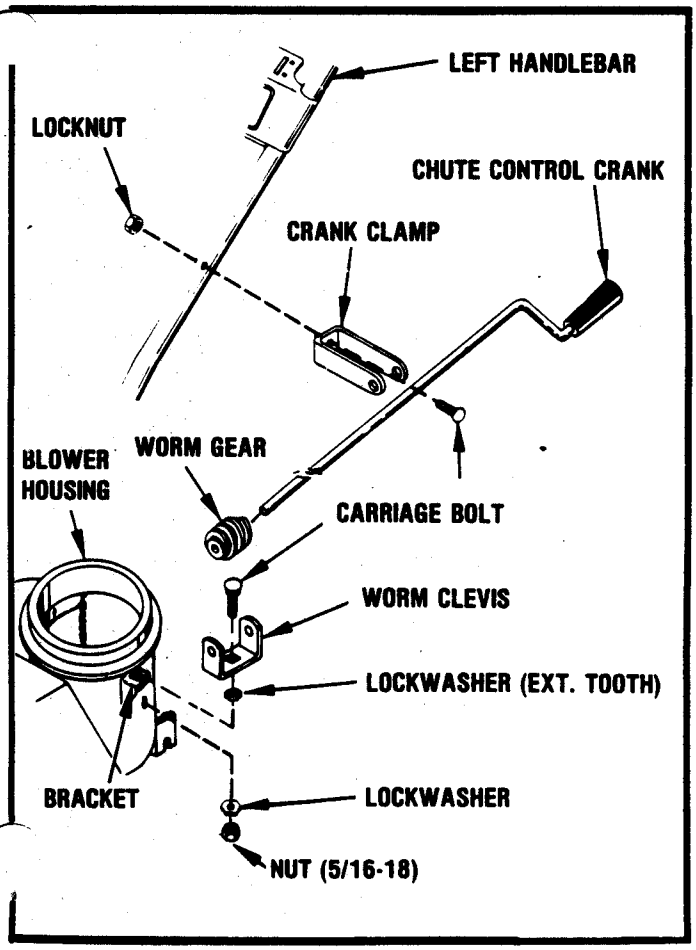


FIGURE 16

Rotate the discharge chute through its full travel to see that it turns easily. Readjust the position of the worm clevis, if required. Oil discharge chute, see Figure 17B.

DEFLECTOR — FIGURE 17

The deflector is shipped in place on the discharge chute but must be raised into operating position. Remove the locking hardware from the discharge chute. Raise the deflector up into position. Re-install the hardware as shown in Figure 17A. Adjust the nut to apply sufficient tension so the deflector can be easily moved by hand but will still hold position when blowing snow.

BLOWER GEAR CASE

The blower gear case is factory lubricated and should require no lubrication by the dealer.

The blower gear case is lubricated with Ariens Liquid Grease (Part No. 000070). This grease will not flow at lower temperatures. It is therefore difficult to check the lubricant level. Best method for checking is to place the unit in a warm location overnight. This allows the grease to flow to level. Check the lubrication by removing the filler plug on the side of the gear case just above the left auger shaft. Lubrication should be even with the hole with the machine sitting level. It may be necessary to insert a wire into the hole to check level. The unit will not be damaged by over lubricating.

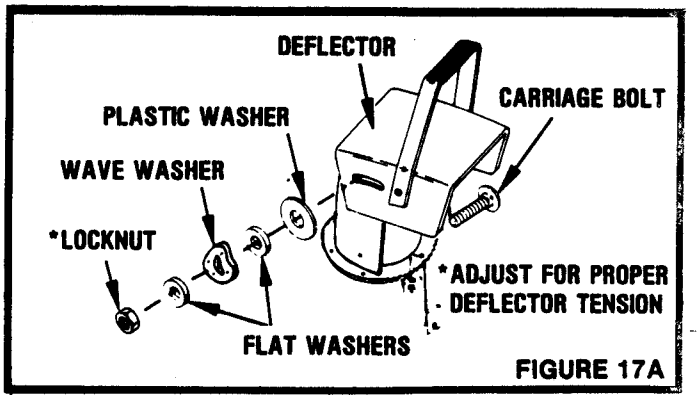


FIGURE 17A

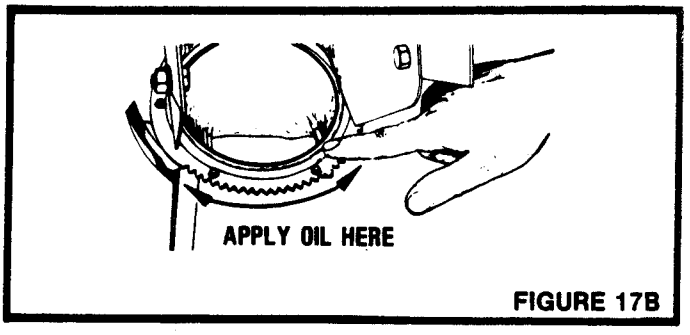


FIGURE 17B

FIGURE 17

ENGINE

Fill crankcase with oil as recommended in Engine Manufacturer's Instructions supplied with the product. Check oil level before each use and change oil regularly according to Engine Manufacturer's Instructions.

TIRE PRESSURE

Models 932004 and 932006 are equipped with pneumatic tires. Adjust pressure to 12 to 20 PSI before operating. Tire pressure of 20 PSI is recommended for use with tire chains.

REGISTRATION

Fill out pre-warranty registration card and mail to Ariens Company. Warranty will only be registered under the model and serial number found on the serial number label (also stamped into the frame of the unit). Add serial numbers in serial number recording area of this manual.

DELIVERY

Using the Owner's Manual as a guide, instruct the customer as follows:

1. Instruct the customer on the operation of the Sno-Thro. Emphasize safety and discuss the safety information in the Owner's Manual.
2. Advise customer to change oil in the engine crankcase after the first two hours of operation.
3. Explain how to perform the recommended lubrication and periodic service.
4. Explain maintenance and adjustment instructions.
5. Demonstrate how to mount and dismount attachments.
6. Make certain the customer has his Owner's Manual and Engine Instructions.
7. Explain Ariens Warranty Policy. Fill out and return Ariens Warranty Registration Card.

SERIAL NUMBER — SNO-THRO
(PLATE LOCATED ON REAR OF FRAME)

SERIAL NUMBER — ENGINE
(STAMPED INTO TOP OF ENGINE ABOVE RECOIL START)

A message to the Ariens customer...

Welcome to the world of Ariens equipment. We are pleased that you have selected Ariens and sincerely believe you have purchased the best equipment available. The care you give your new Ariens equipment will greatly determine the satisfaction and service life you will obtain from it. Use this manual and the engine manual supplied, as your guide. By observing the instructions and suggestions in these manuals, your Ariens equipment will serve you well for many years.

Your **Ariens dealer** will be happy to supply any service or advice which may be required to keep your Ariens equipment operating at peak efficiency. He stocks genuine Ariens parts and lubricants; manufactured with the same precision and skill as the original equipment. His factory trained staff is kept well informed on the best methods of servicing Ariens equipment and is ready and able to serve you. If engine repairs or services are required, they can be obtained from an **Ariens dealer** or from an authorized engine manufacturer's service station. If service is required, be prepared to supply the service person with the Model Number and Serial Number of the equipment and the engine, as well as a full description of the problem encountered.