

OPERATING INSTRUCTIONS

AND PARTS LIST

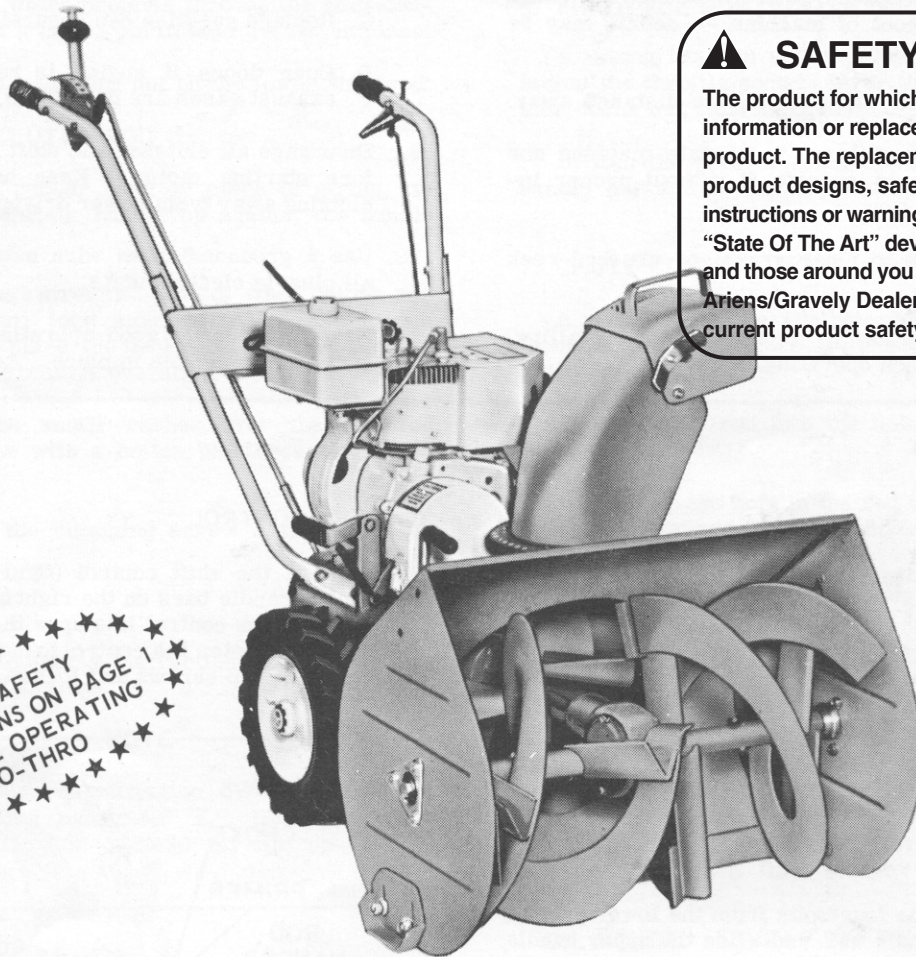
Ariens



SNO-THRO

4 H. P. MODEL

Serial Number
10M4-04501
and up



▲ SAFETY MESSAGE ▲

The product for which you have requested information or replacement parts is not a current product. The replacement models incorporate product designs, safety features, safety instructions or warnings which represent the latest "State Of The Art" developments. For your safety and those around you please contact your nearest Ariens/Gravely Dealer for a demonstration of the current product safety provisions and features.

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PRICE \$.25

WARRANTY

Ariens Company hereby warrants to the original retail purchaser all new products of its own manufacture to be free from defects in material and workmanship.

Engine, parts or accessories not manufactured by Ariens Company, even though incorporated into its products, are not covered by this warranty.

The warranty period shall be one year from date of original purchase, except when the product is used for rental purposes, in which case the warranty period shall be for 45 days from date of original purchase.

Any transportation charges incurred on any product claimed defective, which shall include the time and expense of the distributor or dealer for pickup and/or return of the unit, shall be borne by the purchaser.

This warranty shall not apply to any failure resulting from misuse, neglect or accident. Ariens Company shall not be responsible for damage in transit or handling by any common or contract carrier. Under no circumstances, within or without the warranty period, will the company be liable for damages for loss of use, or damages resulting from delay, or any consequential damages.

The company reserves the right to incorporate any changes in design into its products without obligation to make such changes on units previously manufactured.

SAFE SNOW REMOVAL IS NO ACCIDENT

Improper use of snow removal equipment on the part of the operator can result in injury. To reduce this possibility, give complete and undivided attention to the job at hand.

Protect Yourself and Others by Following These Safety Tips

1. Stop motor before cleaning discharge, removing obstacles, making adjustments, or when leaving operating position.
2. Never direct discharge at bystanders nor allow anyone in front of machine -- debris may be hidden in the snow.
3. Keep children and pets a safe distance away.
4. Do not allow children to operate machine nor allow adults to operate it without proper instruction.
5. Adjust height to clear gravel or crushed rock surface.
6. Exercise caution to avoid slipping or falling, especially when operating in reverse.
7. Know the controls and how to stop quickly -- read the owner's manual.
8. Handle gasoline with care -- it is highly flammable.
 - A. Use approved gasoline container.
 - B. Never add gasoline to a running engine -- fill tank out of doors and wipe up spilled gasoline.
 - C. Replace gasoline cap securely.
 - D. Open doors if engine is run in garage -- exhaust gases are dangerous.
9. Disengage all clutches and shift into neutral before starting motor. Keep hands, feet, and clothing away from power driven parts.
10. Use a grounded three wire extension cord for all plug-in electric units.
11. Keep machine in good operating condition and keep safety devices in place.

ASSEMBLY

1. GENERAL

When unpacking, be sure to remove all loose items from the carton.

2. HANDLE BARS

a. Place the holes in the flat section of the lower handle bars over the studs projecting from the frame on each side of the engine.

b. Place a lockwasher and nut on each stud but do not tighten.

c. Remove the four bolts from the lower portion of the upper handle bar and slide the upper handle bar in place between the curved portions of the lower handle bars (figure 1).

d. Replace the bolts in the top hole of the lower handle bar and the matching hole in the upper handle bar. Fasten with locknut.

e. Hook the bent portion of the nameplate panel over the lower handle bar and slide it up until the holes in the panel line up with the lower holes in the lower handle bar. Fasten in place with bolts and locknuts.

f. Tighten the nuts holding the lower handle bar to the frame.

3. SHIFT CONTROL

Position the shift control (figure 1) on the inside of the handle bars on the right hand side so that the holes in the control line up with the holes in the handle bar. Fasten the control to the handle bar with two hex head cap screws and lockwashers (figure 1).

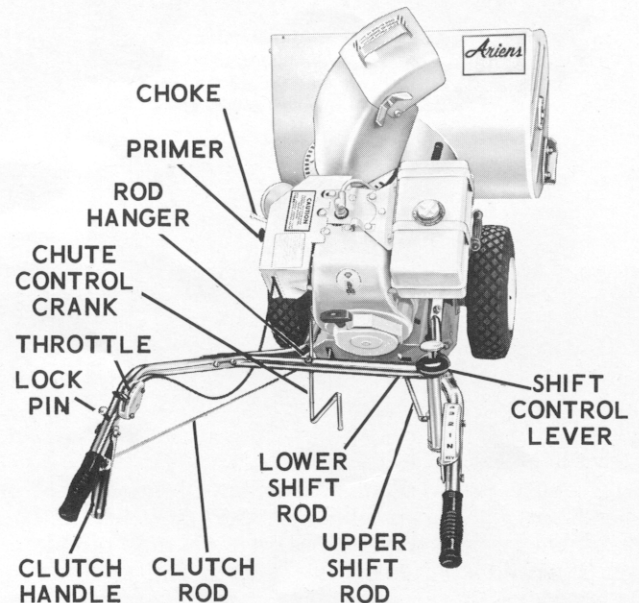


Figure 1

4. SHIFT ROD

a. Pull up as far as possible on the lower shift rod which projects from the rear of the engine mounting frame (figure 1). Screw the threaded portion of the upper shift rod over the lower shift rod.

b. Depress the rod in the center of the shift knob and pull the shift control back to the REVERSE position.

c. Thread the upper rod on the lower rod until the opposite end of the rod drops easily into the hole in the shift control. Place a washer over that portion of the rod which projects through the shift control and insert a cotter pin to hold the rod in place.

d. Tighten the locking nut on the lower shift rod.

5. TRACTOR CLUTCH ROD

a. Using a rubber band or piece of string, tie the clutch operating handle up against the handle bar.

b. Slide the straight end of the clutch rod through the ball joint mounted on the clutch arm (figure 1) and place the bent end of the rod through the hole in the clutch operating handle (figure 1).

c. Place the small washer over the rod and fasten in place with a cotter pin through the hole in the rod.

d. Tighten the clamping screw in the ball joint.

e. Remove the ties holding the clutch operating handle to the handle bar and remove the wedge from under the clutch arm.

f. Pull up on the clutch operating handle and lock the handle in place with the locking pin. Depress the button on top of the shift lever and move the lever to the neutral position. If the shift lever does not move freely to the neutral position, loosen the clamping screw in the ball joint, slide the wedge in a little farther, and retighten the clamping screw and remove the wedge.

6. THROTTLE CONTROL LEVER

a. Using the two self-tapping screws provided, fasten the throttle control lever (figure 1) to the inside of the left hand handle bar.

b. Run the control cable down the inside of the handle bar and fasten in place with the spring clip.

7. CHUTE CONTROL ROD

a. Slide the chute control rod through the hole in the rod hanger (figure 1) mounted on the left hand side of the handle bar.

b. Slide the rod into the hole in the universal joint.

c. Line up the hole in the rod with the hole in the universal joint and insert the cotter pin.

LUBRICATION

1. ENGINE

See manufacturer's instruction book for engine lubrication instructions.

NOTE

Use MS classification 5W-20 for operation below 40° F. Use MS classification SAE-30 oil for operation above 40° F.

with approximately 5 oz. of SAE-90 Ariens Gear Oil every 25 hours of operation.

b. To drain and refill, remove drain plug and allow oil to drain. Tip machine back on handle bars (be sure clutch is locked in UP position). Pour oil into filler hole until it starts to run out of drain hole. Replace drain and filler plug.

c. Oil rake oil holes (figure 2) every 25 hours of operation or each time a shear bolt is replaced.

2. TRACTOR DRIVE

a. At the start of each season grease the gears, hex and fork shaft, jaw coupling, and chains.

b. Two or three drops of light oil should be placed on the shift lever release rod.

3. SNO-THRO UNIT

a. Drain and refill the snow rotor gear case

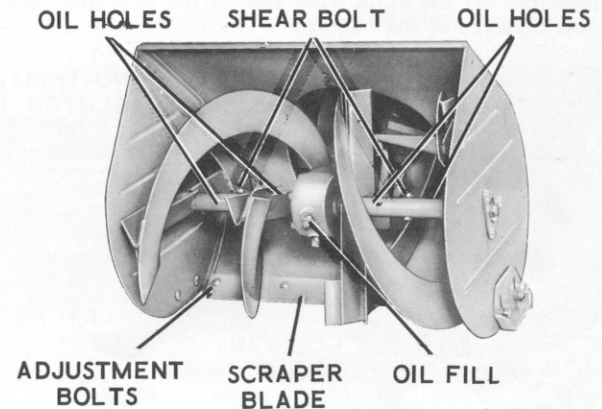


Figure 2

OPERATING INSTRUCTIONS

1. ENGINE

Complete instructions for the operation, lubrication, and proper care of the engine will be found on the instruction plate attached to the engine fan housing and in the manufacturer's instruction book packed with the engine. Do not attempt to start the engine before following the manufacturer's recommendations for servicing the engine.

2. TRACTOR CLUTCH

a. The clutch operating handle mounted on the left handle bar serves to disengage the clutch so that the shift control lever may be moved to any one of the four forward speeds or reverse position.

b. When the clutch operating handle is squeezed together, the shift control lever may be moved to the desired position. Releasing the handle will cause the machine to move in the direction and at the speed selected. Once the tractor is in motion, it is possible, without using the clutch, to shift to a higher or lower speed range. However, the clutch must be used when moving the shift control lever into neutral or reverse.

c. A locking device is provided on the clutch operating handle to hold the handle in the non-operating position. The lock is released by a light squeeze on the handle.

3. SHIFT CONTROL LEVER

a. The shift control lever mounted on the right handle bar governs the speed and direction of the tractor.

b. To move the shift control lever to a selected position, squeeze the tractor clutch operating handle together, depress the button on the center of the shift control lever knob and move the lever.

4. ENGINE CLUTCH

a. The engine clutch is controlled by a lever mounted on the right hand side of the unit (figure 3) just forward of the engine.

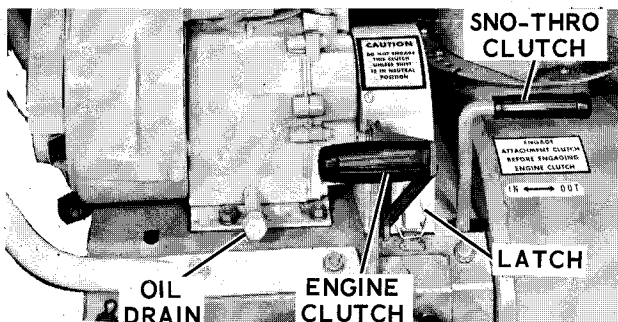


Figure 3

b. When the clutch control lever is pulled up, the idler pulley bears against the drive belt causing the engine to drive the tractor transmission.

c. When the clutch control lever is pushed down, the idler pulley moves away from the drive belt, loosening the belt and the transmission stops.

5. SNO-THRO CLUTCH

a. The Sno-Thro clutch is controlled by a lever at the rear of the Sno-Thro blower housing (figure 3).

b. To start the Sno-Thro auger and blower, start the engine, place the Sno-Thro clutch in the IN position (clockwise) and engage the engine clutch on the tractor.

c. To stop the Sno-Thro auger and blower, disengage the engine clutch on the tractor and place the Sno-Thro clutch in the OUT position (counterclockwise).

d. The tractor may be used to move the unit with the Sno-Thro auger and blower stopped by engaging the tractor clutch while leaving the Sno-Thro clutch in the OUT position.

6. THROTTLE CONTROL

The throttle control lever controls the speed of the engine and therefore, in conjunction with the shift control lever, the speed of the machine. Moving the lever toward "F" increases engine speed and moving it toward "S" decreases speed. Moving the lever to the STOP position will stop the engine. ALWAYS MOVE THE THROTTLE LEVER TO "PARK" AFTER ENGINE HAS STOPPED.

7. CHOKE

A manual choke is provided which is operated by a lever projecting from the carburetor cover on the left hand side of the engine. The lever can be placed in any one of four detent positions. Moving the lever toward the rear of the machine places it in the FULL CHOKE position. As it is moved forward, it will pass through the 3/4 CHOKE and 1/2 CHOKE positions to the NO CHOKE position fully forward.

8. RUNNERS

a. An adjustable runner is provided on each end of the blower housing (figure 4). Raising or lowering these runners controls the distance the scraper blade is held above the surface being plowed. Adjustment is accomplished by loosening the two nuts on each of the runners to the desired position and retightening the nuts.

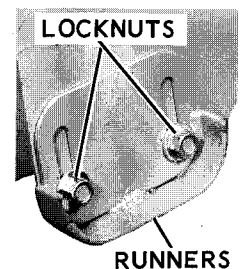


Figure 4

b. In wet snow which packs easily, it may be necessary to remove the runners or turn them upside down so the scraper blade will scrape clean.

9. ENGINE STARTING INSTRUCTIONS

a. Fill engine fuel tank with "regular" grade gasoline.

b. Place engine clutch lever in down position and shift control lever in NEUTRAL.

c. Place choke lever in FULL CHOKE position.

d. At temperatures below 10° F., depress primer button and pull recoil starter slowly past compression one time. Release primer button.

CAUTION

Do not use primer when temperature is above 10° F.

e. Pull recoil starter handle quickly. When engine starts, move choke control lever to 3/4 CHOKE position (first notch). After 20-seconds, move choke control lever to 1/2 CHOKE position (second notch). After an additional 15-seconds, move choke control lever to NO CHOKE position.

f. If engine does not start on first pull, move

choke lever to 1/2 CHOKE position before pulling recoil starter a second time.

g. If engine does not start by the fifth pull starter twice. Repeat starting procedure. DO NOT REPRIME ENGINE BEFORE TRYING AT LEAST FIVE PULLS ON STARTER.

10. SCRAPER BLADE

An adjustable scraper blade (figure 2) is provided along the bottom edge of the blower housing. During operation, this blade runs along the surface being plowed directing the snow into the rotor and insuring a clean plowed surface. After considerable usage, this blade may wear and should be adjusted. The blade is adjusted by loosening the five nuts holding it to the housing, sliding it down to the new position and retightening the nuts. The blade is also designed so that it may be reversed if one side becomes worn beyond further adjustment.

11. CHUTE

The chute is designed so that it can be rotated through an angle of 240 degrees by means of the chute control crank mounted on the handle bar. By turning the handle of the control rod, the blown snow can be directed either to the right or left or straight ahead. An adjustable deflector on the chute can be moved up or down to control the height and distance the snow will be blown.

OPERATING TIPS

1. PRE-OPERATION PRECAUTIONS

a. Before the first snowfall, be sure the area on which the Sno-Thro is to be operated is free of sticks, stones, toys, or other obstructions which might be picked up by the machine during operation.

WARNING

Do not allow children to run through the snow being discharged from the machine. Small objects picked up by the machine may be thrown out of the chute with considerable force and can cause serious injury.

b. Always allow the engine to warm up to operating temperature before operating the machine in snow.

c. Operate the machine in a cleared area before operating in snow for the first time. Become familiar with all controls before attempting to plow.

2. CHUTE ADJUSTMENT

a. The distance the Ariens Sno-Thro will throw the snow will depend on the type of snow being plowed. In general, the position of the deflector will determine the distance the snow will be thrown. Tipping the deflector down will decrease the throw and tipping the deflector up will increase the throw.

b. The distance the snow is blown can also be controlled to some extent by the engine speed. Slowing down the engine by means of the throttle control will decrease the throw and increasing speed will increase the throw. By a combination of engine speed and deflector adjustment, the snow can be blown a distance suitable for nearly every situation.

NOTE

When operating the Sno-Thro in wet snow, occasionally a sufficient amount of snow may stick inside the chute causing partial clogging. To prevent this, it is suggested that the inside of the chute be coated with a light layer of "paste" or "spray" wax. It is recommended that the inside of the chute be waxed two or three times each season.

3. DEPTH ADJUSTMENT

How clean the Sno-Thro will plow is determined by the adjustment of the runners. See paragraph 7 of Operating Instructions. When plowing on concrete or other hard surfaces, these runners should be adjusted so that they are approximately 1/8-inch below the scraper blade. When plowing gravel driveways or other gravel areas, adjust the runners so that they are 1-1/4-inch below the scraper blade.

4. PLOWING

a. When plowing reasonable depths of ordinary snow, it is only necessary to guide the machine along the path to be plowed and to adjust the chute to blow the snow with the wind. When making the second pass on a sidewalk or driveway, allow the machine to overlap the previous path slightly to insure complete removal of snow.

b. When plowing through a very heavy drift, such as one formed by the passing of the street plow, it may be necessary to "inch" into the drift when making the first pass. To do so, allow the machine to enter the drift and then declutch. Allow the machine to blow away the accumulation of snow and then move the machine forward deeper into the drift by releasing the clutch handle. Again declutch and allow the machine to clear away the snow. Continue this process until a complete path has been cleared through the drift. On the second pass through the drift, allow the path of the machine to overlap the first path.

5. SHEAR BOLT REPLACEMENT

Occasionally a small object may enter the rotor and become jammed in the blades. When this occurs the shear bolts, located on the shaft on which the rotor is mounted, will break and allow the rotor to turn freely on the shaft. Before plowing can be continued, this shear bolt must be replaced. See figure 2. **USE ONLY ARIENS SHEAR BOLTS. USE OF OTHER TYPES OF BOLTS MAY RESULT IN SEVERE DAMAGE TO MACHINE.**

WARNING

If it becomes necessary to replace the shear bolts or necessary to remove any obstruction from either the rotor, blower, or chute, **STOP THE ENGINE.**

NOTE

Each time a shear bolt is replaced, the rakes must be oiled and turned on the shaft by hand several times to insure that they will not bind.

PARTS LIST FOR 4 HP TRACTOR

Part No.	Description	No. Req'd.	Part No.	Description	No. Req'd.	Part No.	Description	No. Req'd.
1027	Spring	2	10230	Clutch Rod	1	12X72	Capscrew 1/4-20 x 1-1/4	1
2033	Handle Bar Panel	1	10231	Shift Quadrant	1	12X73	Capscrew 5/16-18 x 1-3/4	1
2038	Clutch Handle	1	10232	Shift Handle	1	12X74	Capscrew 5/16-18 x 2/3/4	1
2044	Clutch Lock Spring	1	10233	Spring	1	14X12	Set Screw 5/16-18 x 3/8	2
2045	Clutch Lock Pin	1	10235	Shift Rod	1	20X2	Lockwasher 1/4 Std.	2
2402	Idler	1	10237	Chain	1	20X3	Lockwasher 5/16 Std.	10
3003	Friction Wheel	1	10239	Sheave	1	20X4	Lockwasher 3/8 Std.	4
3031	Bearing Flange	2	10240	Idler Arm Hub Spacer	1	21X2	Washer 5/16	15
3085	Bearing Flange	2	10241	Upper Handle Bar	1	21X7	Washer 1/4	1
3086	Ball Joint	1	10247	Ball Joint	1	21X33	Washer	1
5006	Key 3/16 Sq. x 1"	1	10248	Shift Ball	1	21X37	Washer	1
6071	Spacer	2	10266	Tractor Frame	1	21X38	Shim Washer	1
R-1271	Spacer Bushing	1	10267	Bearing Housing	1	21X42	Washer	1
10147	Bottom Cover	1	10272	Carburetor Cover (Not Illus.)	1	21X43	Washer	1
10156	R. H. Lower Handle Bar	1	10275	Hex Shaft	1	23X15	Nut 5/16-18	1
10157	L. H. Lower Handle Bar	1	10276	Sprocket	1	23X18	Nut 3/8-16	7
10158	Outer Belt Guard	1	10277	Friction Disc Hub	1	23X31	Nut 5/16-24	4
10159	Inner Belt Guard	1	10279	Axle Shaft	1	23X40	Locknut 1/4-20	2
10160	R. H. Belt Finger	1	10285	Connecting Link	1	23X41	Locknut 3/16 10-24	8
10161	L. H. Belt Finger	1	10288	Hub Cap	2	23X42	Locknut 5/16-18	8
10194	Clutch Lever	1	10289	Eye Bolt Rod Hanger	1	23X43	Locknut 5/16-24	4
10196	Handle Bar Washer	2	10293	Shift Release Handle	1	23X54	Locknut 1/2-20	2
10202	Idler Arm	1	10294	Engine Sheave	1	23X56	Nut 1/4-20	6
10204	Spindle	1	12023	Bearing Support	2	24X11	Feather Key	2
10205	Drive Plate	1	1X63	Ball Bearing	2	24X12	Key #91 Woodruff	1
10206	Jaw Coupling	1	1X74	Thrust Bearing	1	24X15	Key #5 Woodruff	1
10207	Pinion & Sprocket	1	1X78	Ball Bearing	2	25X1	Cotter Pin 3/32 x 3/4	1
10208	Pinion Stub Shaft	1	2X26	Bushing	2	25X4	Cotter Pin 1/8 x 1	2
10209	Support Bracket	1	2X34	Bushing	2	25X10	Hair Cotter Pin	3
10211	Spur Gear	1	5X37	Retaining Ring	2	25X14	Cotter Pin 1/8 x 1-1/4	2
10212	Bracket Pin	1	5X43	Snap Ring	1	28X12	Cable Clamp	1
10213	Sliding Fork	1	8X8	Clevis Pin	1	28X32	Throttle Control	1
10214	Fork Shaft	1	9X16	Roll Pin 3/16 x 1	1	31X9	Flange Whizlock Screw 5/16-18 x 1/2	14
10215	Lever Bracket	1	12X22	Capscrew 5/16-18 x 3/4	2	31X10	Flange Whizlock Screw 3/8-16 x 1/2	4
10217	Transfer Lever	1	12X50	Capscrew 1/4-20 x 1-1/2	3	31X11	Ribbed Neck Bolt 1/4-20 x 5/8	6
10220	Clutch Bracket	1	12X53	Capscrew 5/16-24 x 3/4	5	33X62	Tire & Wheel Assembly	2
10222	Disc Bracket	1	12X56	Capscrew 1/4-20 x 1-1/4	2	34X89	Belt	1
10226	Neutral Catch	1	12X69	Capscrew 5/16-18 x 1-1/4	2	35X1	Self-Tapping Screw #10 x 1/2	1
10227	Throttle Lever	1			1	36X5	Grip 3/4 x 3-1/2	4
10228	Lower Shift Rod	1			1	36X6	Grip 1 x 4-1/2 or 5	2

SERVICE

1. GENERAL

Ariens dealers will provide any service 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 authorized engine manufacturer's service station. Consult an Ariens dealer for details.

2. ENGINE

Refer to the engine instruction book and nameplate on the engine for maintenance instructions. If repairs or service are needed for engine, see an Ariens dealer or nearest authorized engine service station.

ACCESSORIES

1. SLICER BAR (3-10M)

The slicer bar is available as optional equipment for Model 10M4. The SLICER BAR is designed to cut through deep snow and dislodge crusted or drifted snow. The bar can be installed on either side of the SNO-SCOOP.

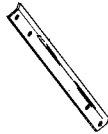


Figure 5

2. TIRE CHAINS (1-10M)

Tire chain kit number 1-10M is available for 3x12 semi-pneumatic tires.

3. TIRE CHAINS (2-10M)

Tire chain kit number 2-10M is available for 4:00x6 pneumatic tires.

4. PNEUMATIC TIRE KIT (6-10M)

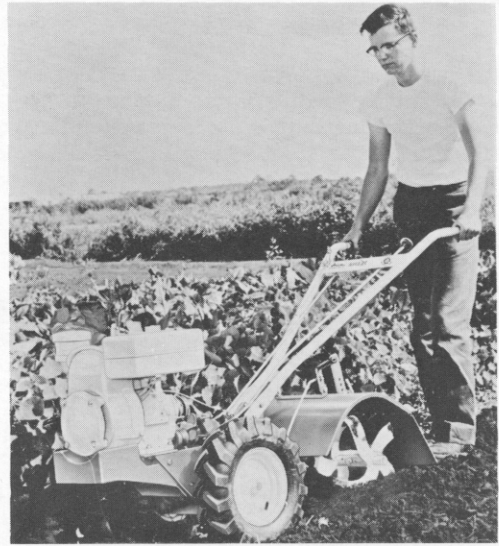
Pneumatic tire kit 6-10M is available for Model 10M4 Sno-Thro.

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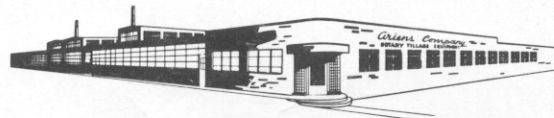
ARIENS SNO-THRO Self propelled, 2 stage, heavy duty, 4 or 6 h.p. rotary snow thrower. 180° swiveling SNO-CHUTE with hand crank directional control.



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ARIENS COMPANY

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