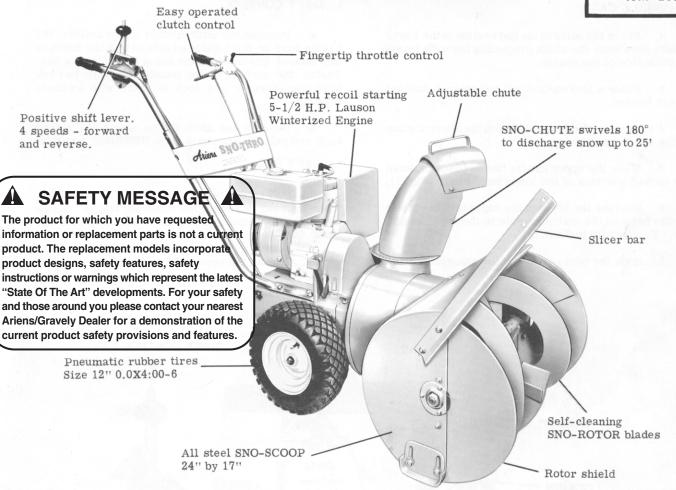
### OPERATING INSTRUCTIONS AND PARTS LIST MANUAL

### Ariens SNO-THRO

Models

10M-L55

10M-L35



### WARRANTY

Ariens products are guaranteed to the original retail purchaser for 90 days from date of purchase. This guarantee does not include belts, tires, etc., and other items subject to normal wear. Ariens Company warranty DOES NOT APPLY ON ENGINES WHICH ARE SEPARATELY COVERED BY WARRANTY OF EN-GINE MANUFACTURER. Ariens Company makes no warranty with respect to trade accessories, such being subject to the warranty of their respective manufacturer. No warranty is extended to sheet metal items or finishes.

The warranty will not apply to any products repaired or altered outside of our factory or any Ariens Authorized Service Distributor or Dealer which, in the company's judgment affects its condition or operation. Neither will the warranty apply to any failures resulting from misuse, neglect, or accident. Ariens Company is not responsible for damage in transit or handling by common carriers.

The company reserves the right to incorporate any changes in design without obligation to make them on units previously sold.

### **ASSEMBLY**

### 1. GENERAL

The Ariens Sno-Thro is shipped in a single carton. Except for the handle bars and controls, the unit is completely assembled and banded to a wooden skid. When unpacking the unit, 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 studbut do not tighten.
- c. Remove the four bolts from the lower portion of the upper handle bar.  $\,$
- d. Slide the upper handle bar in place between the curved portions of the lower handle bars (Fig. 1).
- e. Replace the bolts in the top hole of the lower handle bar and the matching hole in the upper handle bar. Fasten with locknut.
  - f. 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.

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

### 3. SHIFT CONTROL

- a. Position the shift control 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 lock in place with locknuts (Fig. 1).
- b. Depress the knob in the center of the shift knob and pull the knob back to the REVERSE position.

### 4. SHIFT ROD

- a. Pull up on the lower shift rod which projects from the rear of the engine mounting frame. Screw the threaded portion of the upper shift rod over the lower shift rod.
  - b. Thread the upper rod on the lower rod until

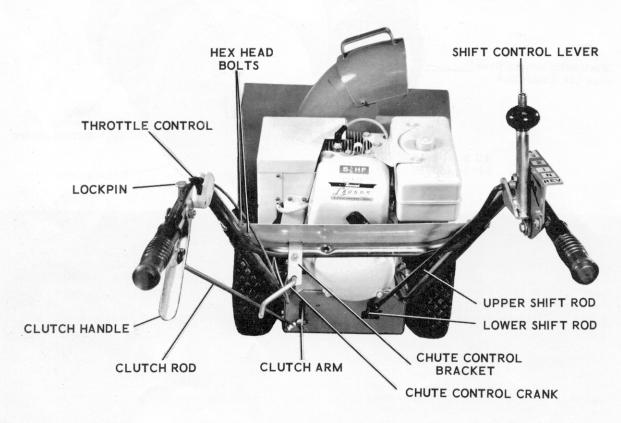


Figure 1

the opposite end of the rod drops easily into the hole in the shift control.

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

### 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 rod through the ball joint mounted on the clutch arm and place the bent end of the rod through the hole in the clutch operating handle.
- 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.
  - g. Remove the wedge.

### 6. CHUTE ADJUSTMENT ROD

- a. Slide the chute adjustment rod through the hole in the bracket mounted on the left hand side of the handle bar (Fig. 1).
- 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.
- d. Position the bracket mounted on the handle bar so the chute adjustment rod will turn freely. Tighten the bracket.

### 7. THROTTLE CONTROL LEVER

- a. Using the two self-tapping screws provided, fasten the throttle control lever to the inside of the left hand handle bar (Fig. 1).
- b. Run the control cable down the inside of the handle bar and fasten in place with the spring clip.

### 8. TIRES

For shipping purposes, the tires on the Sno-Thro have been inflated to greater than normal pressure. Before using the machine, deflate the tires slightly to provide greater traction. Be sure to balance the air pressure in both tires so the machine will travel in a straight line.

### - CAUTION -

Before starting the engine, be sure to follow the Lubrication Instructions. Before attempting to operate the Sno-Thro, read the Operating Instructions.

### LUBRICATION

### 1. ENGINE

See manufacturer's instruction book for engine lubrication instructions.

### NOTE -

SAE 10 oil is recommended for use in the engine crankcase when operating at temperatures below 32 degrees Fahrenheit.

### 2. SNOW ROTOR GEAR CASE

Drain and refill the snow rotor gear case with SAE 80 or 90 Automotive Rear Axle lubricant every 25 hours of operation or at the beginning of each season (Fig. 2).

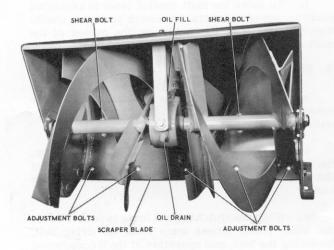


Figure 2

### 3. TRACTOR DRIVE

The wheel and blower drive is lubricated for

### OPERATING INSTRUCTIONS

operation.

### 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 speed range and back down again. 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 just forward of the engine.
- 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 and the blower.
- c. When the clutch control lever is pushed down, the idler pulley moves away from the drive belt, loosening the belt, and operation of the transmission and blower stops.

### 5. THROTTLE CONTROL

a. The throttle control lever mounted on the left handle bar controls the speed of the engine and, therefore, in conjunction with the shift control lever, the speed of the machine during operation.

life. Drive chains and bearings are prelubricated. Occasional greasing of the shafts on which the shift bracket and sprocket are located will result in easier

- b. Pushing the throttle control lever forward as far as it will go places the engine carburetor in the "choke" position for starting.
- c. Pulling the throttle control lever back as far as it will go stops the engine.
- d. The throttle control lever may be set at any point between the STOP and CHOKE position for the desired engine speed.

### 6. STARTING

- a. Place the throttle control lever in the CHOKE position.
- b. Place the engine clutch control lever in the down position.
- c. Operate the tractor clutch and move the shift control lever to the NEUTRAL position.
- d. Pull the recoil starter handle. When the engine starts, move the throttle control lever to the RUN position.

### 7. STOPPING

To stop the engine, move the throttle control lever to the STOP position.

### 8. RUNNERS

An adjustable runner is provided on each end of the blower housing. 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 and sliding the runners to the desired position and retightening the nuts. (Fig. 3).

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. SCRAPER BLADE

An adjustable scraper blade 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

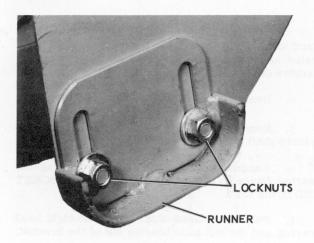


Figure 3

### SERVICE AND ADJUSTMENTS

### 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.

### 3. REPLACING BELT

- a. Remove the belt guard by unsnapping the clips on each side and lifting off the guard.
- b. Turn the snow chute all the way to the left until the slot in the swivel lines up with a tooth on the control gear.
- c. Remove the two thumb screws and separate the unit by tipping the blower and engine sections apart.
  - d. Replace the belt.
- e. Tip the two sections together, being sure the jaw clutch sections are lined up.
  - f. Replace the thumb screws and guard.

### 4. REPLACING DRIVE DISC

After considerable usage, it may become necessary to replace the drive disc. In order to replace the disc, proceed as follows:

 Tip the machine up on the blower and block it securely. 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 (Fig. 2). The blade is also designed so that it may be reversed if one side becomes worn beyond further adjustment.

### 10. CHUTE

The chute is designed so that it can be rotated through an angle of 180 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.

- a surfice and on the frame. O'ur, a)
- Remove the two self-tapping screws holding the bottom cover to the frame and remove the cover.
- c. Remove snap ring securing the right hand wheel to the axle and remove the wheel.
- d. Remove the cotter key and washer securing the upper shift rod to the shift control and remove the rod from the control.
- e. Loosen the locking nut on the lower shift rod and unscrew the upper shift rod from the lower shift rod.

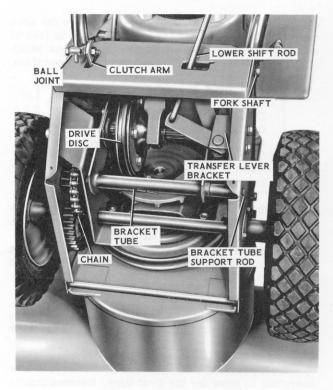


Figure 4

- f. Remove the hex nut securing the ball joint to the clutch arm and remove the ball joint from the arm. (Fig. 4).
- g. Remove the two cap screws and lockwashers securing the transfer lever bracket to the frame. (Fig. 4).
- h. Disconnect the ball joint from the transfer lever and remove lever.
- i. Remove the connector link from the chain and remove the chain (Fig. 4).
- j. Remove the quick pin from the left side of the fork shaft and pull the fork shaft out of the right side of the frame (Fig. 4).
- k. Remove the cotter pin from the center of the bracket tube and remove the bracket tube support rod through the right side of the frame. (Fig. 4).
- 1. Pull the shift bracket outward until the pin on the clutch arm is free of the slot in the top of the frame.
- m. Tip the bottom of the bracket up until the clutch spring comes free of the frame.
  - n. Tip the right hand side of the bracket out-

ward until the bottom right hand corner clears the frame and the sprocket clears the support bracket. Remove the bracket.

- o. Remove the shifting fork.
- p. Remove the large locknut from the end of the splined shaft OPPOSITE the sprocket.
- q. Remove the four hex locknuts holding the bearing flange to the bracket ON THE SPROCKET END of the shaft.
- r. Pull the splined shaft out of the right hand bearing and the left hand bearing out of the bracket.
- s. Pull the drive disc and hub from the splined shaft.
- t. Remove the five cap screws and lockwashers securing the drive disc to the hub and remove the disc.
- u. Replace the drive disc and reverse the above procedure for assembly.

### 5. STORAGE

Refer to the engine instruction manual for storage of the engine.

### **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. During the fall of the year, start the machine regularly once each week and allow the engine to run for a period of five to ten minutes. Periodic operation will insure faster starts. Keep gas tank full. A full tank prevents condensation caused by sudden temperature changes, which may result in faulty operation.
- c. Always allow the engine to warm up to operating temperature before operating the machine in snow.
- d. 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

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.

Always adjust the chute so as to blow the snow with the wind whenever possible. In very light snow, it may be advisable to blow the snow straight ahead of the machine until a sufficient amount has been accumulated for the machine to pick up and blow to the side.

### 3. DEPTH ADJUSTMENT

How clean the SNO-THRO will plow is determined by the adjustment of the runners. See paragraph 8 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

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.

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.

### - 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 .

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.

### **ATTACHMENTS**

### 1. SNO-ROTOR SHIELD KIT (4-10M)

a. General. The SNO-ROTOR SHIELD KIT is available as optional equipment for either model SNO-THRO. It consists of two semi-circular steel plates which bolt to the sides of the SNO-SCOOP to protect the SNO-ROTOR blades from damage due to obstacles hidden in the snow.

### b. Installation.

- (1) Place one of the semi-circular steel discs in position on the inside of the SNO-SCOOP so that the holes in the disc and the holes in the SNO-SCOOP are in line.
- (2) Insert the three cap screws in the mounting holes from the inside and fasten in place with lockwashers and hex nuts.
- (3) Install the second shield on the opposite side of the SNO-SCOOP in the same manner.

### 2. SLICER BAR (3-10M)

a. General. The slicer bar is furnished as standard equipment on Model 10M-L55 SNO-THRO and is available as optional equipment for Model 10M-L35. 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.

### b. Installation.

- (1) Position the SLICER BAR over the mounting holes in the upper portion of the side of the SNO-SCOOP.
- (2) Insert the two cap screws from the inside and fasten in place with lockwashers and hex nuts.

### 3. TIRE CHAINS (1-10M)

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

### 4. TIRE CHAINS (2-10M)

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

### 5. PNEUMATIC TIRE KIT (6-10M)

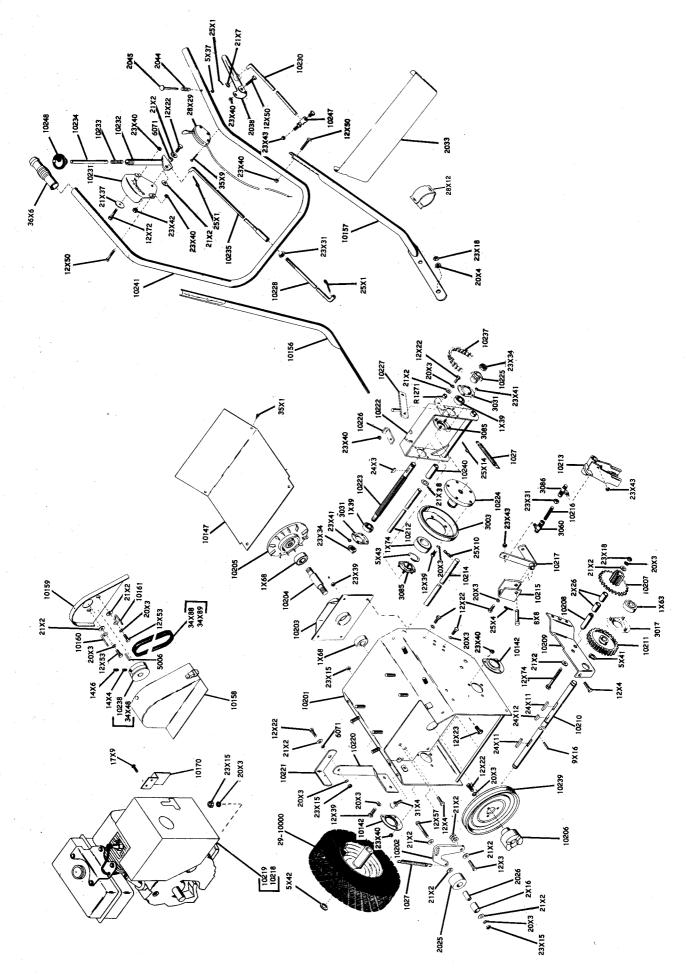
Pneumatic tire kit 6-10M is available for Model 10M-L35 Sno-Thro.

## PARTS LIST TRACTOR

PARTS LISTED ARE USED ON BOTH MODELS EXCEPT AS OTHERWISE INDICATED

No. Part Description Req'd. No.
1 10219
1 10220 Clutch Bracket 1 10221 Clutch Lever
1 10223 Splined Shaft
- v.
C' 1
1 10230 Clutch Rod
2   10234 Release Rod 2   10235 Shift Rod
1 10238 Engine Sheave (10M-L55)
-
02 1
1 10241 Upper Handle Bar *
1 10248 Shift Ball
• • •
-
•
1 2XZ6 Bushing
1 5X43 Snap Ring
Ī
1 9X16 Roll Pin 3/16x1
_
1 12X23 Cap
1 12X50 Cap

\* Specify plated or painted.



## SLICER BAR 3-10M

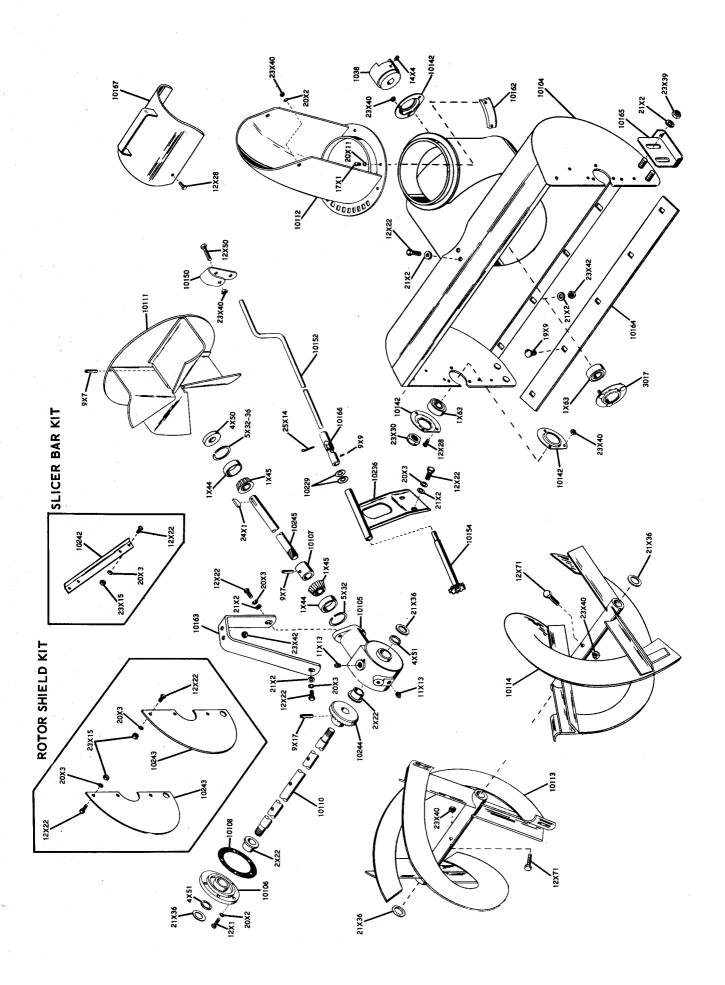
No. Req<sup>\*</sup>d.

# PARTS LIST SNO-SCOOP

PARTS LISTED ARE USED ON BOTH MODELS EXCEPT AS OTHERWISE INDICATED

Description No. Req	Slicer Bar Cap Screw H. H. 5/16–18x3/4 Lockwasher 5/16 Hex Nut 5/16–18	SNO-ROTOR SHIELD KIT 4-10M	Botor Guard Cap Screw H. H. 5/16-18x3/4 Lockwasher 5/16 Hex Nut 5/16-18	Rotor Guard Cap Screw H. H. 5/16–18x3/4 Lockwasher 5/16 Hex Nut 5/16–18	
Part No.	10242 12X22 20X3 23X15	-ONS	Part No. 10243 12X22 20X3 23X15	10243 12X22 20X3 23X15	
No. Req'd.	2 1 2 1 1 4 1/4 1 14 1 14 1 14 7 1 14 1 14 1	/16-18x3/4 6 /4-20x1/2 8 /4-20x1-1/2 1 5/16-18x3/8 4	16-18x1/2 5 16-18x1/2 5 0x1/16 4 16 2 16 4 20 14 20 14 -18 7	0x1/16 4 16 2 16 2 16 2 20 14 -18 7	
Description	Flange Bushing Seal Seal Seal Snap Ring Snap Ring Roll Pin 1/4x1-1/4 Roll Pin 1/8x1 Roll Pin 5/16x1-1/4 Pipe Plug 3/8 Sq. Hd. Cap Screw H. H.1/4-20x3/	Cap Screw H. H.5/16-18x3/4 Cap Screw H. H.1/4-20x1/2 Cap Screw H. H.1/4-20x1-1/2 Shear Bolt Socket Set Screw 5/16-18x3/8 Machine Screw Rd, Hd.	Machine Sole with the Carriage Bolt 5/16-18x1/2 Lockwasher 1/4 Lockwasher 5/16 Lockwasher 3/16 Washer 1-3/8x.880x1/16 Hex Lockmut 3/4-16 Hex Lockmut 1/4-20 Hex Lockmut 5/16-18 Woodruff Key Cotter Pin 1/8x1-1/4	Lockwasher 5/16 Lockwasher 3/16 Washer 1-3/8x,88 Hex Locknut 3/4- Hex Locknut 1/4- Hex Locknut 1/4- Hex Locknut 5/16 Woodruff Key Cotter Pin 1/8x1-	
Part No.	2X22 4X50 4X51 5X32 5XX2 9X7 9X7 9X9 9X17 11X13	12X22 12X28 12X50 12X71 14X4 17X1	117.1 19X9 20X2 20X3 20X11 21X2 21X36 23X30 23X30 23X42 23X42 23X42 23X42 23X42	20X3 20X11 21X2 21X2 21X36 23X30 23X30 23X40 23X40 23X42 23X42 23X42 24X1	
No. Req'd.			port 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	, .
Description	Jaw Clutch Bearing Flange Blower Housing Gear Case Gear Case Flange Bearing Spacer Gasket Front Gear Shaft Fan Discharge Chute	R. H. Kake L. H. Rake Bearing Flange Rod Hanger Chute Control Crank	Chute Clamp Front Gear Case Support Scraper Blade Runner Universal Joint Deflector Wave Washer Chute Control Support Helicon Gear Helicon Pinion Shaft Bearing Cup Bearing Cone	Runner Universal Joint Deflector Wave Washer Chute Control Suppor Helicon Gear Helicon Pinion Shaft Bearing Cup Bearing Cup	Date Dogs
Part No.	1038 3017 10104 10105 10106 10107 10110 10111	10113 10114 10142 10150 10152 10154	10162 10163 10164 10165 10167 10229 10236 10244 10244 10244 1X44	10165 10166 10167 10229 10229 10244 10245 1X44 1X44	2007

No. Req<sup>†</sup>d.



### Ariens

### "GARD-N-YARD" TOOLS



ARIENS SUPER JET rotary tiller with TURBO TINES. 24" tilling width. Choice of 4 famous make engines — 3 h.p. to  $4\frac{1}{2} \text{ h.p.}$  with tine reverse drive.



ARIENS EMPEROR riding mower. Available with Flex-N-Float 26" or 34" rotary or 26" reel mower; Insta-hitch attachments. Electric or recoil starting  $5\frac{1}{2}$  h.p. engine.



ARIENS SNO-THRO Self propelled, 2 stage, heavy duty,  $3\frac{1}{2}$  h.p. or  $5\frac{1}{2}$  h.p. rotary snow thrower.  $180^\circ$  swiveling SNO-CHUTE with hand crank directional control.

### **ARIENS COMPANY**

109 CALUMET STREET . BRILLION, WISCONSIN



ARIENS ROCKET rotary tiller with TURBO TINES and friction-drive Tine Reverse. 20'' tilling width.  $5\frac{1}{2}$  h.p. Lauson engine. For commercial, professional and home aardener use.



ARIENS TRANS-A-MATIC for heavy duty commercial tilling. Choice 9.0 h.p. or 16.5 h.p. Wisconsin engine; 20" or 28" tilling widths. Non-slip differential.



ARIENS TILLIVATOR. Tractor mounted, custom-built tillers for large scale vegetable growers.



Modern, efficient plant of the Ariens Company where GARD-N-YARD tools are manufactured.