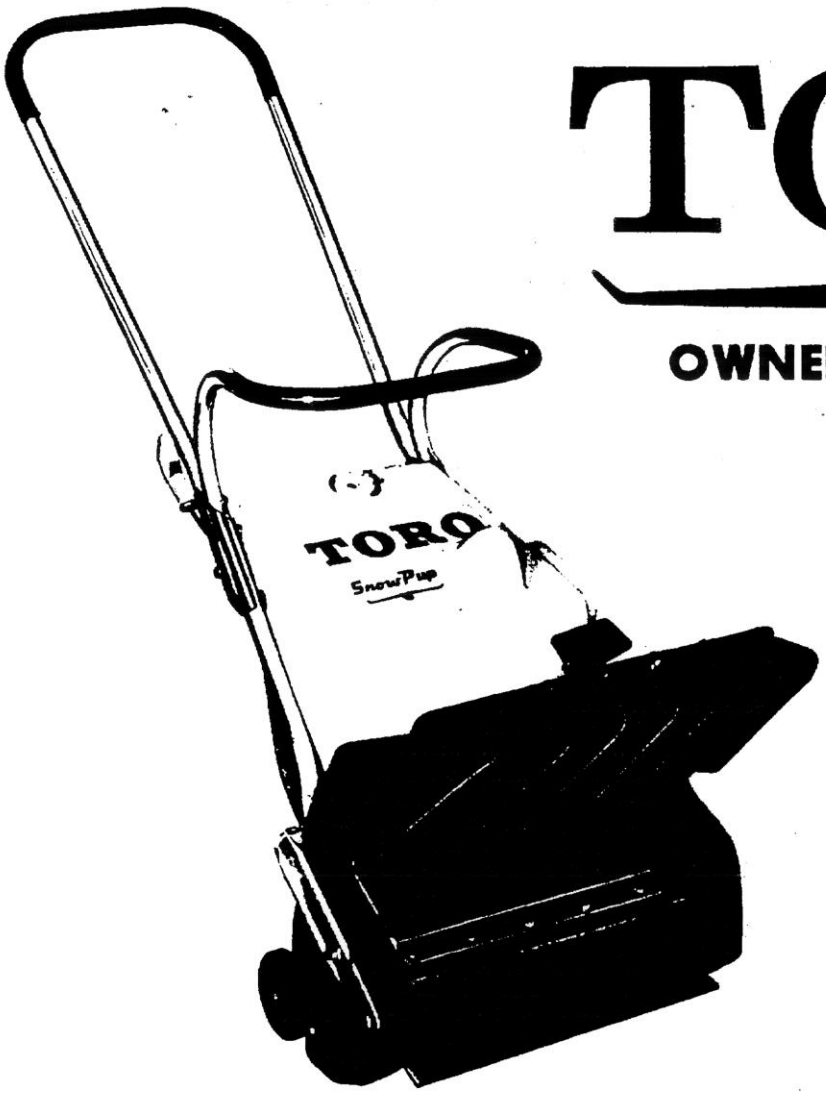



# TORO®

## OWNER'S MANUAL

# Snow Pup Snow Thrower

MODEL NOS. 31410 - 600001 & UP

Book No. O-215

## To a Valued Customer . . .

We cordially welcome you as a member of the Toro family of discriminating homeowners.

For a modest investment you have acquired a Snow Thrower that will provide many seasons of service . . . a quality product supported by Toro's 50 years of conscientious and dependable service.

Read this manual with care. It contains instructions for setting up, operating and adjusting the Snow Thrower, and recommendations for use that will enable you to realize its maximum capabilities.

Save this manual and refer to it often.

## NOTICE

The Toro Manufacturing Corporation makes every attempt to assure that users of Toro products benefit as soon as possible from improvements in design. Such improvements are immediately incorporated in the product and therefore may not be reflected in the Owner's Manual. If such a change apparently has been made in your Snow Pup, see your Toro distributor or authorized Toro dealer for complete details.

# INDEX



## WARRANTY

The Manufacturer warrants each new piece of equipment sold to be free of defects in material and workmanship. For one year from the purchase date of consumer line equipment or 45 days if sold for commercial use, Toro Manufacturing Corporation will repair or replace for the original purchaser, free of charge, through any Authorized Service Dealer, any part or parts found at our factory in Minneapolis, Minnesota, to be defective under normal use and service. All institutional equipment is warranted for ninety (90) days from the purchase date.

This Warranty does not obligate the Manufacturer to bear the cost of transportation charges in connection with the replacement or repair of defective parts -- nor shall it apply to a machine upon which repairs or alterations have been made, unless authorized by the manufacturer.

This Warranty does not include nor cover standard accessories produced by other manufacturers. Such accessories have separate warranties by their respective manufacturers . . . and repair or exchange will be made on the basis of such warranties, and the policies authorized by them shall be adhered to.

This Warranty is in lieu of all other warranties expressed or implied.

# UNPACKING AND SET-UP INSTRUCTIONS

- Unpack your Snow Pup with care to avoid damaging the unit or misplacing the loose parts.
- Carefully inspect the unpacked items to make certain no damage has occurred during shipment. Be sure to locate the small parts bag containing hardware.
- Remove the upper shroud by pressing together the lower rear sides, lifting straight up until clear of the fuel tank cap, and sliding back.
- Slip the upper handle into the retainer plates attached to the lower handle and align the bolt holes. Mount the eye-bolt on recoil starter to the upper hole in the retainer plate on recoil side and secure in place with the bolts, washers and nuts contained in the parts bag.

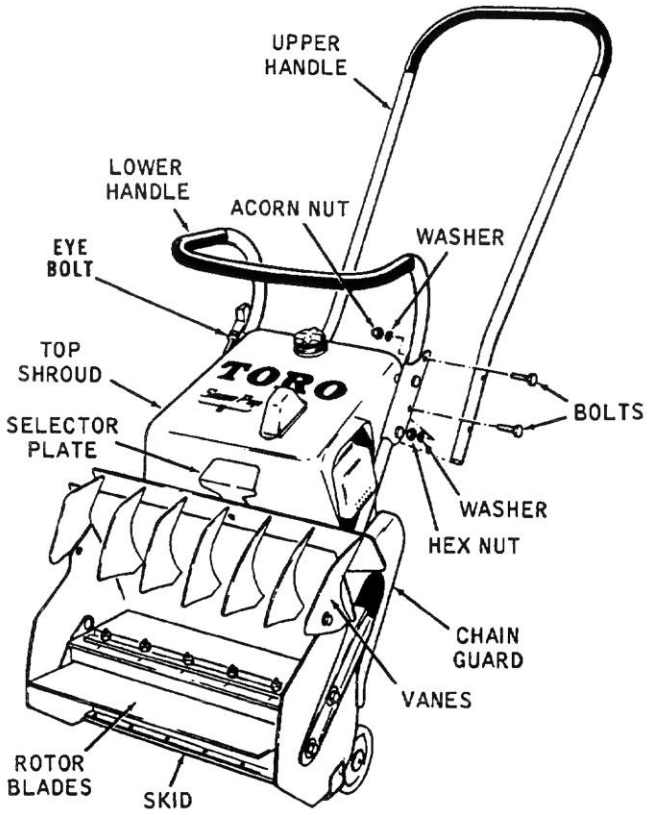
## NOTE

Be sure the acorn nuts are installed on the bolts in the upper holes.

- Check all accessible bolts and nuts for tightness. Make certain the drive chain engages the engine and rotor sprockets and has a deflection of approximately 1/8 inch (refer to ADJUSTMENTS).

  Manually turn the rotor blades and check for a clearance of about 1/16 inch between the edge of each blade and the leading edge of the skid ( refer to ADJUSTMENTS )

  Make sure the ignition wire is securely attached to the spark plug. Replace the top shroud.




## SPECIFICATIONS

ENGINE: Performance rated at 1-3/4 H.P., two-cycle, recoil starter. One quart fuel tank.

ROTOR: Eight inch diameter, two blades.

WIDTH OF SWATH: 14 inches.

REDUCTION RATIO: Engine to rotor 4.0 to 1.

WEIGHT: 20 pounds.

# FUEL

Your Snow Pup uses a two-cycle gasoline engine similar to those used on outboard motors. Engines of this type are lubricated by mixing oil with the gasoline before pouring the gasoline into the fuel tank. NEVER FILL THE FUEL TANK WITH PURE GASOLINE OR ADDITIVES (Gumout, Heet, etc.).

The proper fuel-oil mixture for use in your Snow Pup consists of mixing 1/2 pint of lubricating oil . . . SAE 30, outboard or other two-cycle engine oil . . . with one gallon of regular grade gasoline. Mix the oil and gasoline in a clean container.

**WARNING**

The Warranty covering your Snow Pup Snow Thrower is void if multi-viscosity oils (e.g., 10W-30) are used.


Fill the Snow Pup fuel tank with the specified fuel-oil mixture before starting the engine.

- Do not overfill. Immediately wipe up any spillage.
- Be sure the tank cap is tight.
- Avoid filling the fuel tank when the engine is hot.

# LUBRICATION

All the bearings used in the Snow Pup are pre-lubricated for life at the factory and require no additional lubrication.

A few drops of light machine oil placed on the drive chain before starting the engine each time the unit is used will adequately lubricate the chain and sprockets. It also is good practice to apply a light film of oil to the chain and sprockets as protection against rust during the off season.

# OPERATION

Your Snow Pup is shipped from the factory properly adjusted for normal plowing conditions. No adjustments should be required during initial use of the machine (refer to ADJUSTMENTS).

## STARTING

1. Fill fuel tank with specified fuel-oil mixture (refer to FUEL). Replace tank cap.
2. Make sure rotor blades are unobstructed and free to turn.
3. Pull choke rod out.
4. Pull starter rope with quick steady strokes to start engine.
5. If engine fails to start after four or five pulls, push choke rod part way in to avoid flooding. Pull starter rope until engine starts.
6. When engine starts, immediately push choke rod partially in. As engine warms up, continue pushing choke rod in as necessary to maintain smooth engine operation.

## STOPPING

To stop the engine, depress (from the rear) the boot mounted on the upper shroud.

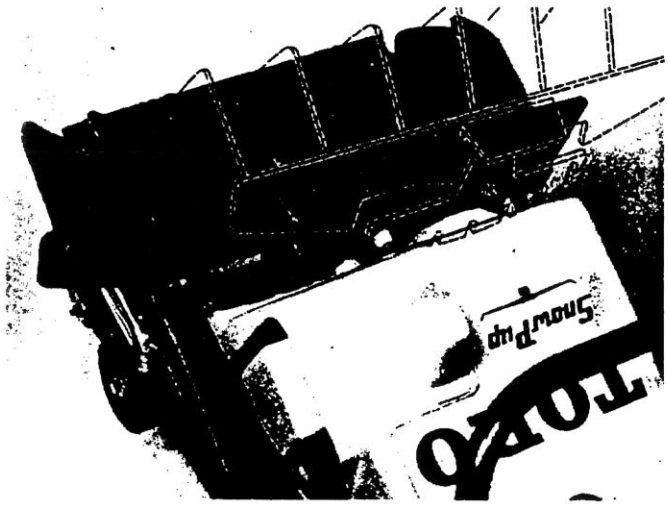
# OPERATING CONTROLS

Your Snow Pup is designed to operate at a constant engine speed and therefore is not provided with a throttle control. Adjustment of the carburetor may be required occassionally to obtain efficient engine operation (refer to ADJUSTMENTS).

No clutch lever is required on the Snow Pup since the engine is chain-coupled directly to the rotor blades which turn continuously when the engine is running. It is important to maintain the proper chain tension (refer to ADJUSTMENTS).

To adjust the vanes to control the direction the snow is thrown:

1. Lift selector plate straight up until notch in lower edge clears locking stud.
2. Move complete selector plate and vane mount assembly to left or right to obtain desired vane curvature.
3. Lower selector plate and engage notch in lower edge with locking stud.




**NOTE** It is good practice to set the vanes in the vertical position when the Snow Pup is not in use. This will prevent the vanes from taking a permanently curved shape.

# OPERATING TIPS AND PRECAUTIONS

- It is good practice to keep the area to be plowed free of stones, toys and other foreign objects. Such items might be covered by the first snow fall and picked up by the rotor blades while plowing.
- Avoid spilling gasoline on the engine while it is hot. Wipe up any spillage immediately.
- Never attempt to adjust the rotor blades or drive chain while the engine is running.
- Use only the fuel-oil mixture specified under FUEL in this manual.
- Keep the rotor blades and drive chain properly adjusted (refer to ADJUSTMENTS).
- If operating unit at temperature of 40° F. or higher for any extended length of time, remove upper shroud to avoid excessive heat build-up from engine.
- When plowing gravel or crushed rock driveways and walks, or clearing deep drifts, hold the unit by the upper and lower handles as shown, and use a swinging or sweeping motion.
- The allowable forward speed of the Snow Pup is dependent on the depth and weight of the snow. Experience will establish the most effective method of using the plow under different conditions.

# ADJUSTMENTS

## ROTOR BLADES

To adjust the rotor blades to compensate for wear and maintain the optimum blade-to-skid clearance:

1 Loosen five nuts and bolts securing rotor blades and reinforcing straps to rotor shaft.

2 Slip both rotor blades outward from shaft one notch. Make certain ridges in blades engage notches in shaft.

3 Retighten bolts and nuts.

4 Check for a clearance of approximately 1/16 inch between edges of both rotor blades and forward edge of skid. If necessary, repeat adjustment.

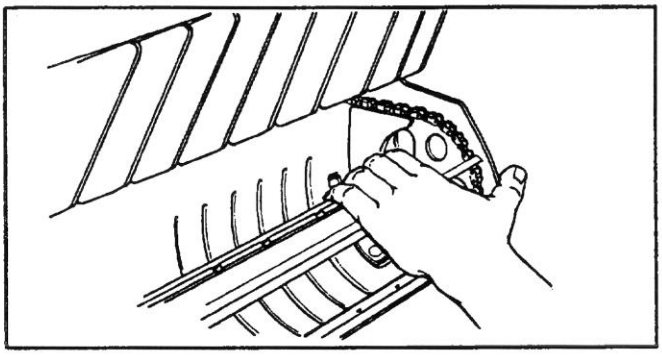
If the rotor blades wear unevenly so the worn edges are not straight, remove the blades from the shaft. Trim the worn edges of the blades, using the grooves in the blades as a guide.

## CHAIN TENSION

If chain tension is too loose, the chain will drag on the housing, causing excessive noise and wear. If the chain is too tight, the drive assembly may bind or parts break. When properly adjusted, the chain should be snug with no more than 1/8-inch deflection or slack. To adjust the chain:

1 Loosen four nuts attaching frame to housing and rotor assembly.

2 Pull rotor assembly forward holding the housing against the frame tube until there is 1/8 inch deflection or slack in the chain. (See illustration below.)



3 Tighten nuts with a torque of 45 - 60 inch-pounds.

4 Check for a clearance of approximately 1/16" between the edges of both rotor blades and forward edge of skid.

5 Loosen two screws holding stripper plate and cap. Slide forward against sprocket and tighten fasteners.

FURTHER ADJUSTMENT OF CHAIN IS AVAILABLE BY MOVING ENGINE

6 Remove upper shroud.

7 Remove chain guard from left-hand side of unit. (See Figure B, below.)

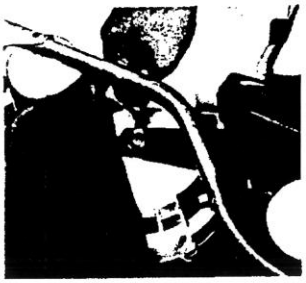


Figure A

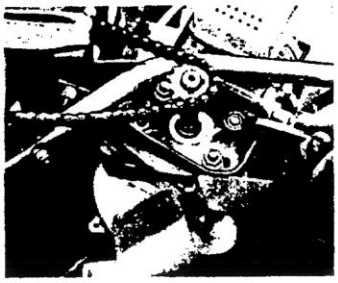


Figure B

8 Remove hair pin cotter and choke strap.

9 Remove two bolts attaching lower shroud to main housing. Loosen one handle bolt on each side so lower shroud can be dropped to gain access to engine mounting nuts. (See Figure B, above.)

10 Loosen four engine mounting nuts on left-hand side and one on right-hand side.

11 Loosen four nuts holding rotor assembly and two screws holding stripper plate and cap.

12 Pull engine back untill rotor assembly is in back of slots in frame arms. While holding engine in position tighten mounting nuts with a torque of 80 - 110 inch-pounds.

AVOID DAMAGING CASTINGS DUE TO EXCESSIVE TIGHTENING TORQUE.

13 Replace lower shroud, chain guard and upper shroud making sure all nuts and bolts are tight. Readjust rotor assembly per steps 1 thru 5.

## CARBURETOR

The engine carburetor has been tested and adjusted at the factory but may require occasional adjustments to obtain maximum performance. Proper carburetor adjustments are as follows:

1 HIGH SPEED ADJUSTMENT SCREW (Full Load). NORMAL setting is closed position. (Closed finger tight only.)

2 LOW SPEED ADJUSTMENT SCREW (No Load). NORMAL setting is 7/8 to $1\frac{1}{8}$ turn open from closed position.

3 IDLE SPEED REGULATING SCREW. Adjust to 3000-3400 RPM by manually holding throttle in closed position. Turning screw clockwise increases speed.

To decrease the fuel supply, turn the "High Speed Adjustment Screw" in a clockwise direction. Close finger tight only - forcing will cause serious damage. To increase the fuel supply, turn the "High Speed Adjustment Screw" in a counter-clockwise direction.