



OPERATION & MAINTENANCE MANUAL

MODELS: SC, CASHSAVER, RS

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PREFACE

IMPORTANT: *Your Snowman Snowplow and the hydraulic power unit both have serial numbers. Record these numbers and keep them in a safe place so that you can refer to them later when obtaining service parts.*

Welcome to the growing family of SNOWMAN SNOWPLOW operators. This manual will teach you how to operate and maintain your new SNOWMAN SNOWPLOW and will provide safety information. Please read this manual carefully and follow its recommendations.

When service is needed, your local SNOWMAN SNOWPLOW distributor knows your plow best. Return your snowplow to the distributor for maintenance service or any other assistance you may require.

SNOWMAN SNOWPLOW, INC. offers a one-year limited warranty for all snowplows and accessories. See separately printed page for this important information. SNOWMAN SNOWPLOW, INC. does not warranty any parts not manufactured by SNOWMAN SNOWPLOW, INC. or any damage caused by the use of these unauthorized items.



SAFETY NOTE: Whenever you see this symbol, it notes a SAFETY WARNING. To avoid serious injury to yourself or others, follow all warnings. Read this manual and plow labels before using your snowplow.

GETTING TO KNOW YOUR SNOWMAN PULL PLOW

MOLDBOARD - Heavy 10 gauge steel reinforced with 1/2" vertical ribs for added strength and rigidity (SC, RS Models). 12 Gauge steel reinforced with vertical ribs (CashSaver Model).

CUTTING EDGE - Replaceable 1,080 high carbon steel; provides extra long operating life. Should be in direct contact with the ground in plowing position (can be higher when used on gravel drives).

PATENTED TRIP SPRING FEATURE - Allows moldboard to trip forward and ride over hidden obstructions, which helps protect the snowplow and vehicle from possible damage.

BOX WINGS - Enable the operator to remove snow from tight areas, reducing the need for manual shoveling. (Standard on all models).

POWDER COAT FINISH ON ARMS, MOLDBOARD & WINGS - Your new blade is protected with a powder coat finish that resists cracking, corrosion, scratching and rust. The coating creates a smooth, glossy finish that can be touched up when necessary.

ELECTRIC POWER UNIT - Operates the SNOWMAN pull plow hydraulically - raises & lowers the moldboard and provides power up, power down when plowing.

HIGH LIFT CAPABILITY - A lift height of up to 47" makes it possible to remove large drifts next to garage doors and loading docks.

ADJUSTABLE ARMS - Make the SNOWMAN pull plow compatible with high bed or lift kit pickup trucks (up to 46" bed height).

HYDRAULIC PUMP PRESSURE - Gives the operator the ability to remove packed snow instantly when moving forward.

HITCH PINS - Provide fast mounting or dismounting of the SNOWMAN pull plow from the vehicle.

VEHICLE HARNESS - For easy mounting & dismounting of plow.

REPLACEABLE FLAGS - For improving operator visibility and blade control.

MODELS OF SNOWMAN SNOWPLOWS

MODEL 70 CASHSAVER, 70+SC, 80+SC: Single cylinder. Receiver hitch mount. Recommended for full size ½ ton to 1 ton 2/4 WD vehicles. Recommended minimum hitch height: 14”.

The existing hitch must meet Snowman’s minimum tongue weight requirements as listed in the chart below for applicable model.

SPECIFICATIONS

SNOWPLOW MODEL	70 CASHSAVER	70+SC	80+SC
Length of Moldboard	7’	7’	8’
Height of Moldboard	21”	23”	23”
Thickness of Moldboard	12 GA.	10 GA.	10 GA.
No. of Vertical Ribs	2	6	8
No. of Trip Springs	1	4	4
Cutting Edge Size	3/8”X6”X7’	3/8”X6”X7’	3/8”X6”X8’
Size of Power Ram	2”X2”X8”	2”X2”X8”	2”X2”X8”
Required Hitch Class	Class 3	Class 4	Class 5
Required Tongue Weight	No less than 500#	No less than 750#	No less than 1000#
Plowing Width with Extension Wings	N/A	102”	N/A
Approx. Inches From Bumper to End of Plow (In Down Position)	42”	42”	42”

MODELS OF SNOWMAN SNOWPLOWS

MODEL 70+RS, 80+RS: Mounts on receiver hitch (hitch provided). Recommended for heavy ¾ and 1 ton, 4 WD vehicles. Compatible with most slide-in and tailgate spreaders

SPECIFICATIONS

SNOWPLOW MODEL	70+RS	80+RS
Length of Moldboard	7'	8'
Height of Moldboard	23"	23"
Thickness of Moldboard	10 GA.	10 GA.
No. of Vertical Ribs	6	8
No. of Trip Springs	4	4
Cutting Edge Size	3/8"X6"X7'	3/8"X6"X8'
Size of Power Ram	2"X2"X12"	2"X2"X12"
Required Hitch Class	Class 4	Class 5
Required Tongue Weight	No less than 750#	No less than 1000#
Plowing Width w/Extension Wings	102"	N/A
Approx. Inches From Bumper to End of Plow (In Down Position)	40"	40"
Spreader Clearance	49"W X 24"D	49"W X 24"D

MOUNTING SNOWMAN SNOWPLOW TO VEHICLE

For complete directions on assembling and installing all models of SNOWMAN pull plows and accessories, see Installation Instructions shipped with the plow.

CASHSAVER & SC MODELS -- IMPORTANT!

1. Inspect the existing hitch and frame for cracks and other defects that could weaken the hitch or frame. Repair defects found in the frame. If cracks or defects are discovered in the hitch, it must be replaced before mounting the Snowman plow.
2. Check the bolts that were used in mounting the hitch. Snowman recommends using Loctite and lock nuts on grade 8 bolts to assure maximum strength.

RS MODEL -- IMPORTANT!

1. Inspect the vehicle frame for cracks and other defects that could weaken it and make necessary repairs prior to installing or mounting the Snowman plow.
2. The hitch extensions add strength to the hitch. **Never remove the hitch extensions after they have been installed.**

OPERATING YOUR SNOWMAN PULL PLOW



WARNING: *Always raise the blade of your SNOWMAN pull plow before backing your vehicle. The SNOWMAN pull plow is designed to be used only when the vehicle is moving in a forward direction.*

All SNOWMAN pull plows are designed to be used only when the vehicle is moving in a forward direction. Always raise your blade before backing to avoid damage to the plow or your vehicle.

LIGHT CHECK

Before you begin plowing, always check the lights on the snowplow and on your vehicle to see that they are operating properly.

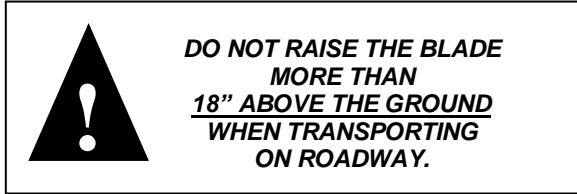
CONTROLLING THE BLADE

The SNOWMAN pull plow is designed to exert up to 1,450 lbs. of pump pressure. Periodic remote operation is required in order to obtain constant down pressure when plowing lots that have an uneven surface area. The trip springs help protect your plow and vehicle from damage when the blade comes in contact with hidden obstructions.

NOTE: See “Troubleshooting” section for instructions on regulating the plow movements.

TRANSPORTING PLOW

When transporting your Snowman pull plow, adjust the blade height for maximum plow light illumination.



WARNING: It is recommended that your vehicle be equipped with plow backup lights and sirens. Be sure all lights are operating properly before traveling.

WARNING: Make sure blade does not block tail lights.

WARNING: Never exceed posted road speeds. Under bad weather conditions or when driving on uneven surfaces such as railroad tracks or bumpy roads, reduce speed.



IMPORTANT!!!

Switch controller to "Off" when transporting plow and when plow is not in use.



PARKING THE VEHICLE WITH PLOW ATTACHED

Whenever you park your vehicle, lower the blade to the ground. **IMPORTANT!** Do not back your vehicle when the plow is in the down position.

PLOWING SNOW

GENERAL INSTRUCTIONS

1. Before plowing, inspect the snow removal area for obstructions hidden beneath the snow, such as bumper stops in parking lots, curbs, sidewalk edges, pipes and objects that may be sticking up from the ground. Also take note of the location of shrubs and fences.
2. Only the driver should be in the vehicle when plow is attached for plowing.
3. Plow during the storm rather than letting snow accumulate.
4. 10 m.p.h. is a maximum snow plowing speed under ideal conditions, assuming the driver is familiar with the roadway or area to be cleared. Under unfamiliar or hazardous conditions, or if there is poor visibility, reduced speed and extreme caution are recommended.
5. When using the SNOWMAN pull plow in conjunction with a conventional front mount plow, snow removal time can be cut by as much as two-thirds. Before plowing, the operator should read all instructions that pertain to both plows.

CAUTION: Flag any obstructions that are hard to locate.

WARNING: Always wear a seat belt when plowing snow. Hidden obstructions could cause the vehicle to stop suddenly, throwing you forward.

WARNING: Never plow with your head out of the vehicle window. Sudden stops or protruding objects could cause severe neck or head injuries.

WARNING: Never back the truck with the plow in the down position.

SPECIAL SNOW CONDITIONS

HARD PACKED SNOW

1. When removing hard packed snow, use lowest gear to place maximum power behind cutting edge and apply full down pressure while moving forward.

DEEP SNOW

1. With rear plow in raised position, back your vehicle to the point where you will start plowing. After bringing your vehicle to a complete stop, lower the rear plow to the ground while applying some down pressure.
2. Drive forward, filling the rear plow. After the rear plow has been filled, lower the front plow and proceed forward.
3. Shear off top layers of snow by lowering the rear plow approximately one-half the depth of the snowfall. EXAMPLE: For a 24 inch snowfall, shear off 12 inches with the first pass, and another 12 inches in the second pass. Experience and "feel" are the best guides.
4. When plowing deep snow, be sure to keep the vehicle moving.
5. For increased traction use tire chains.

CLEARING DRIVEWAYS

1. Back into the driveway with the rear plow in the raised position (stopping approximately 2-4 inches from garage doors).
2. Lower the SNOWMAN pull plow to the surface of the drive and then pull forward, filling the rear plow.

3. When the rear plow is full, lower the front plow and proceed with normal plowing practices.
4. **Raise the SNOWMAN rear plow before coming to a complete stop.**
5. Back your vehicle onto the cleared portion of the drive, lower the front plow and make a final pass.

CLEARING PARKING LOTS

1. With the SNOWMAN rear plow in a raised position, back your vehicle to a starting point. After coming to a complete stop, lower the SNOWMAN rear plow and pull forward, filling the rear plow. Lower the front plow and proceed with normal plowing procedures.
2. As you approach the end of the parking lot, raise the SNOWMAN rear plow before you stop. Back across the lot and repeat step one until lot is cleared. NOTE: The snow that you take in each pass with the SNOWMAN rear plow will be piled on the following pass with the front plow.



WARNING: *Be sure you and others are a safe distance from the blade when it is being raised or lowered. Do not stand between the vehicle and blade or directly behind the blade. If the blade strikes you or drops on you, serious injury could result.*

REMOVING THE SNOWMAN PULL PLOW & STORAGE

When not in use, it is recommended that the SNOWMAN pull plow be removed from the vehicle.

STORAGE FOR CASHSAVER & SC MODELS:

1. Back the truck onto a flat surface. Lower the plow to the surface.
2. Use the hydraulics and the jack to release the pressure on the T-mount and the vehicle receiver tube. The jack will only have slight pressure on it to the the ground.
3. Switch the controller to “off”.
4. Unplug the electrical harness at the back of the truck and cover the plug with the attached weather cap.
5. Remove the safety chain.
6. Attach the jack to the T-mount. Lower the jack to the ground.
7. Remove the hitch pin from the T-mount and then adjust the jack pressure until the tension between the hitch’s receiver and the plow’s T-mount is released.
8. Return to the vehicle and pull forward slowly.
9. When the plow is in transit or being used the jack can be removed from the unit or pinned horizontally to the T-mount with the pin provided.

STORAGE FOR RS MODEL:

1. Place the 2 plow stands underneath the cutting edge of the plow.

2. Insert one tube in each stand behind the blade.
3. Lower the plow onto the stand while applying slight down pressure. (This will release the pressure on the plow pins.)
4. Switch the controller to “off”.
5. Unplug the electrical harness at the back of the truck and voer the plug with the attached weather cap.
6. Remove the two upper arm hitch pins and the 1x4” bolts at the pivot end of the cylinders.
7. Remove the left and right pivot hitches (one hitch pin per hitch), leaving the power unit attached to the right pivot hitch.
8. Lean the plow back and insert the remaining two tubes into the stands in front of the blade.

MAINTENANCE

PRESEASON

Scheduled vehicle maintenance should be performed as recommended by the manufacturer. Don't forget that in addition to keeping equipment in order:

- Equip vehicles with chains to be used where necessary.
- Provide operators with protective clothing and with rubber gloves for handling snow melting chemicals.

VEHICLE ELECTRICAL SYSTEM:

For maximum efficiency, the vehicle supporting the snowplow must be properly serviced. The system should consist of at least a 1200 cranking amp battery and a 100 amp alternator per plow.

Be sure to check regularly:

1. Battery, to assure it is in top condition; terminals to assure they are tight and corrosion free.
2. Electrical connections, to assure they are tight and corrosion-free. At beginning of season and after each use thereafter clean each electrical connection with dielectric contact cleaner, let dry, then reapply dielectric grease. Use dielectric grease freely to help prevent corrosion. Heat shrink or taping may be called for. All wires must be held clear of moving or hot engine parts or sharp sheet metal.
3. Alternator and regulator, to assure maximum electrical output.

SNOW PLOW:

NOTE: ALWAYS LOWER THE MOLDBOARD TO THE GROUND WHEN THE VEHICLE IS NOT IN USE.

1. Before each use inspect the hitch and frame for cracks and other defects that could weaken the hitch or frame. If cracks or defects are discovered in the hitch, it must be replaced before mounting the plow. If defects are found in the frame they must be repaired prior to mounting plow.
2. Keep the 2" square extension on the T-mount well greased so that it will easily slide in/out of the receiver tube when hooking up to, or unhooking the plow.

3. Check and maintain hydraulic fluid reservoir level at 2/3 to 3/4 full. Snowman Snowplow, Inc. recommends "Lubriplate Special Pour Hydraulic" oil. To locate a Lubriplate dealer near you, call 419-691-2491. When ordering, ask for item no. 76757 (four, 1-gallon containers). If Lubriplate is not available, whatever oil is recommended for your front plow will work fine.
4. Check entire hydraulic system for leaks. A significant drop in hydraulic fluid level is evidence of a leak that must be corrected to prevent serious damage.
5. Before and after each season, remove hitch pins and pivot points, thoroughly grease pivot tubes and reinstall pins. Lubricate all pivot points with chassis lube.
6. Adjust trip spring tension by tightening top lock nut 4 turns beyond the point when spring coils begin to separate. Tighten bottom lock nut to hold eye bolt in position.
7. Replace the cutting edge as soon as it appears worn approximately 4". This will prevent permanent damage to the moldboard.
8. Retighten all mounting bolts each snowfall for the first plowing season and at regular intervals thereafter.
9. **Inspect the hitch for wear and loose bolts prior to each use.**
10. When the power unit is not used for extended periods, protect the chromed lift piston by fully extending and coating it with chassis lubricant.
11. Regular cleaning, re-greasing (using dielectric grease) and sealing of all connections on pump, battery and breaker is necessary to maintain correct grounding and amp flow for optimum operating performance of the unit.

POST SEASON

1. When the snowplow is disconnected, extend the lift cylinder to the end of stroke and coat chrome rod with light grease. This fills the cylinder with hydraulic fluid and protects the interior and exterior from rust and corrosion.
2. Coat all pivot pins and other wear points with chassis lubricant.
3. Unplug all electrical connections at power unit. Coat all connections with a dielectric compound to prevent corrosion and plug into their corresponding weather plugs.

SELECTING EQUIPMENT

Where you plan to plow, and the conditions under which you will be plowing determine to a great extent the type of vehicle you'll find most useful. In general, three types of vehicle are available as the power source of snow clearance. Each type has certain inherent advantages depending upon the particular situation.

Four-wheel drive UTILITY VEHICLES and TRUCKS have proven most effective in general snow plowing situations. They have excellent traction and maneuverability and are extremely easy to handle.

Two-wheel drive TRUCKS, particularly those of 1 ½ to 3 tons, are best for straight line road clearance and in large open areas.

SNOWMAN'S custom design for specific vehicles provides the advantage of easy, fast attaching and detaching. This feature permits utilization of vehicle versatility as weather conditions and job requirements demand.

Snowman recommends John Deere "Low-Viscosity Hy-Gard" oil for your Snowman plow.

TROUBLESHOOTING

MODEL	PROBLEM	POSSIBLE CAUSE	REMEDY
CashSaver/ SC	Plow will not raise /will not lower No sound at motor	1) Disconnected harness 2) Corroded contacts at harness 3) Corroded eyelets at pump 4) Corroded eyelets at battery 5) If breaker fuse has been installed, possibly blown breaker	1) Connect harness plug-in 2) Clean & apply dielectric grease 3) Clean & apply dielectric grease 4) Clean & apply dielectric grease 5) Check for bare or exposed wire & repair, replace fuse
CashSaver/ SC	Plow will not raise/will not lower Solenoid clicks	1) Corroded contacts at harness 2) Corroded eyelets at pump 3) Corroded eyelets at battery	1) Take apart, clean & apply dielectric grease 2) Take apart, clean & apply dielectric grease 3) Take apart, clean & apply dielectric grease
CashSaver/ SC	Plow descends in jerking motion	1) Incorrect flow control setting 2) Oil weight is too light 3) Air in system 4) Possible internal bypassing in cylinder	1) Loosen the flow control set screw, adjust the flow until plow operates properly then reset the set screw 2) Replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 3) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder ram is fully retracted; repeat until all air is removed 4) Replace cylinder

TROUBLESHOOTING

MODEL	PROBLEM	POSSIBLE CAUSE	REMEDY
CashSaver/ SC	Plow descends too fast or slams down	1) Incorrect flow control setting 2) Oil weight is too light 3) Air in system	1) Loosen the flow control set screw, adjust the flow until plow operates properly then reset the set screw 2) Replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 3) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder ram is fully retracted; repeat until all air is removed
CashSaver/ SC	Plow lowers and/or raises too slow	1) Incorrect flow control setting 2) Incorrect fluid being used 3) Fitting is restricted	1) Loosen the flow control set screw, adjust the flow until plow operates properly then reset the set screw 2) Flush & replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 3) Remove fitting, clean, replace & test; if necessary, repeat until system is flushed clean
CashSaver/ SC	Plow will not apply correct down pressure	1) Incorrect flow pressure	1) Remove the nut cap with a 1-1/16" end wrench. Using a straight screwdriver, turn clockwise for more pressure, counter clockwise for less pressure

TROUBLESHOOTING

MODEL	PROBLEM	POSSIBLE CAUSE	REMEDY
RS	Plow will not raise (will not lower) Solenoid clicks	1) Corroded contacts at harness plug-in 2) Corroded eyelets at pump 3) Corroded eyelets at battery	1) Take apart, clean & apply dielectric grease 2) Take apart, clean & apply dielectric grease 3) Take apart, clean & apply dielectric grease.
RS	Plows descends in jerking motion	1) Oil weight is too light 2) Air in system 3) Possible internal bypassing in cylinder	1) Replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 2) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder ram is fully retracted; repeat until all air is removed 3) Replace cylinder
RS	Plow descends too fast or slams down	1) Oil weight is too light 2) Air in system	1) Replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 2) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder ram is fully retracted; repeat until all air is removed

TROUBLESHOOTING

MODEL	PROBLEM	POSSIBLE CAUSE	REMEDY
RS	Plow lowers and/or raises too slow	1) Incorrect fluid being used 2) Fitting is restricted	1) Flush and replace with Lubriplate Special Pour Hydraulic Oil (see pg. 10) 2) Remove fitting, clean, replace & test; if necessary repeat until system is flushed clean
RS	Plow will not apply correct down pressure	1) Improper lower arm installation; plow cutting edge is not at correct 90 degree angle to shop floor	1) Lower moldboard by adjusting lower arms, until cutting edge is at 90 degree angle to shop floor; long lower arms should be installed on truck beds of 34" and over
RS	Plow raises uneven	1) Air in system 2) Truck frame is uneven	1) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder ram is fully retracted; repeat until all air is removed 2) Make adjustments to cylinder at tie rod end
RS	Plow will not raise (will not lower) No sound at motor	1) Disconnected harness 2) Corroded contacts at harness plug-in 3) Corroded eyelets at pump 4) Corroded eyelets at battery	1) Connect harness plug-in 2) Clean & apply dielectric grease 3) Clean & apply dielectric grease 4) Clean & apply dielectric grease