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# Installation Instructions

Models: 70+ (07) RS, 80+ (07) RS

**Quick Mount** 

#### **READ BEFORE INSTALLATION!**

Instructions in this manual supersede all editions published at an earlier date. Snowman Snowplow, Inc. reserves the right, under its continuing product improvement program, to change constructions or design details, specifications and prices without notice or without any obligation.

#### IMPORTANT!

This manual contains step-bystep instructions for proper installation of the SNOWMAN model RS snowplow.

Please read manual carefully before assembling plow, and follow recommendations given.

## **IF FURTHER ASSISTANCE IS NEEDED, CALL 888-766-6267**



This is a safety alert symbol. It alerts an operator to information concerning personal safety.

Always observe and heed these symbols and instructions to prevent serious injury to yourself or others.

#### **GENERAL INFORMATION:**

CAUTION: Always disconnect battery prior to installation.

Check contents of shipment against the parts list to determine all are correct and included.

When order parts, furnish model number of plow, part number, name and description.



SAFETY PRECAUTIONS should be used when power unit is IN OPERATION and plow is in ANY POSITION. LOWER plow to ground when vehicle is PARKED.

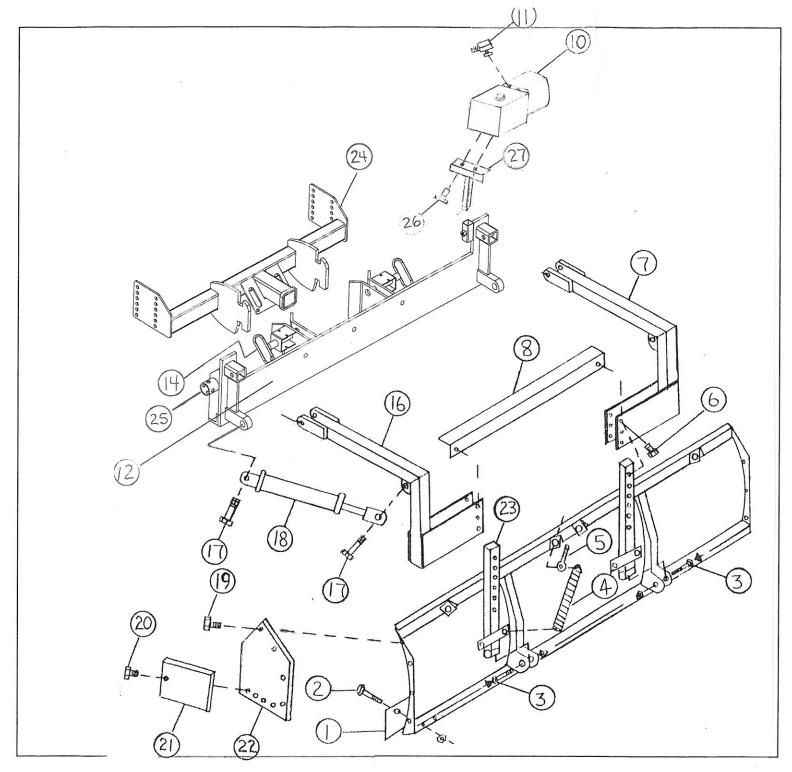


Remove plow when not in use.



Always SWITCH THE REMOTE CONTROL TO "OFF" before unhooking from plow, and when the plow is not in use. For models with optional joystick controller.

| TOOLS NEEDED FOR SNOWMAN MODEL RS SNOWPLOW INSTALLATION |                               |  |  |  |  |
|---|-------------------------------|--|--|--|--|
| WRENCHES: 7/16" 1/2" 9/16" 5/8" 11/16" 3/4" 7/8" 15/16" | DRILL BITS:<br>3/8"<br>11/16" | HAMMER CENTER PUNCH NEEDLE NOSE PLIERS SIDE CUTTERS ELECTRICAL WIRE PLIERS DRILL |  |  |  |



#### PLOW ASSEMBLY FOR MODELS 70+(07)RS, 80+(07)RS - QUICK MOUNT

- 1) (C4003-7'; C4005-8') Carbon steel cutting edge
- 2) (X11051) ½"x2" Carriage bolt (9-70+RS) (10-80+RS)
- 3) (X11007) 5/8"x4" bolt (6)
- 4) (T9001) Trip spring (4)
- 5) (X11021) 5/8"x63/4" Eye bolt (4)
- 6) (X11005) 1/2"x31/2" Bolt (4)
- 7) (U7001R) Right upper arm (32-1/2")

- 8) (U6004) Upper arm brace
- 10) (SM-DB1374A) 4.0 Hyd. power unit
- 11) (H2004) 9/16" Boss swivel fitting (2)
- 12) (SMMP07) Mounting Plate
- 14) (X11058) 3/4"x2" Hitch pin (2)
- 16) (U7001L) Left upper arm (32 1/2")
- 17) (X11042) 1"x4" Bolt (4)
- 18) (H2002) Cylinder (2-2"x12")

- 19) (X11003) ½"x1¾" Bolt (8)
- 20) (X11001) 5/16"x11/2" Bolt (8)
- 21) (R1000) Rubber cutting edge-11" (2)
- 22) (A5002L/R) Box wing (2)
- 23) (L7003; R8003) Lower arms
- 24) (95600) Receiver hitch
- 25) (JA00IL07) 15" Jack (2)
- 26) (X11002) 3/8"x1" Bolt (2)
- 27) (PM003) Pump mount

### PARTS LIST: (07)RS QUICK MOUNT

| PART<br>NUMBER   | DESCRIPTION                       | QTY  | QTY<br>B/O  | REF<br>NO  | PART<br>NUMBER  | DESCRIPTION   | QTY   | QTY<br>B/O   |
|--|-----------------------------------|--|---|--|---|---|---|--|
| 700103R/Y  | 7 Ft.12 ga. Moldboard             | 1  |   | 10   | SM-DB1374A  | 4.0 Hydraulic power unit  | 1   |  |
|  | 8 Ft.12 ga. Moldboard             | 1  |   |  | H3003   | Hydraulic hoses (48")   | 6   |  |
| 4003   | 7 Ft. carbon steel cutting edge   | 1  |   |  | PC001   | Vinyl power unit cover  | 1   |  |
| 4005   | 8 Ft. carbon steel cutting edge   | 1  |   |  | ET3002CS  | 2-way up/down toggle controller w/3' lead   | 1   |  |
| 11051  | 1/2"x2" Carriage bolt 70+RS       | 9  |   | 26   | X11002  | • 3/8"x3/4" Bolt  | 2   |  |
|  | 80+RS                             | 10   |   |  | X11022  | 3/8" Lock washer  | 2   |  |
| 11018  | 1/2" Lock nut 70+RS               | 9  |   | 11   | H2004   | 9/16" Boss swivel fitting   | 2   |  |
|  | 80+RS                             | 10   |   |  | H2008   | Hydraulic T-fitting   | 2   |  |
| 7003   | Standard lower left arm           | 1  |   | 18   | H2002   | Cylinder (2"x2"x12")  | 2   |  |
| 8003   | Standard lower right arm          | 1  |   |  | H2006   | 3/8" Standard swivel fitting  | 4   |  |
| 11007  | 5/8"x4" Bolt                      | 2  |   | 17   | X11042  | • 1"x4" Bolt  | 4   |  |
| 11035  | 5/8" Lock nut                     | 2  |   |  | X11043  | • 1" Lock nut   | 4   |  |
| 11039  | 5/8" Structural washer            | 6  |   |  | All of the above indented items included in bag # 2+RS                |   |   |  |
| 9001   | Spring                            | 4  |   |  | EH4002  | 25 Ft. vehicle harness  | 1   |  |
| 11021  | 5/8"x6-3/4" Eye bolt (2 nut)      | 4  |   |  | EH4001  | 3 Ft. pump harness  | 1   |  |
| 5600   | Receiver hitch                    | 1  |   |  | E3005   | 2 Ft. battery cable   | 1   |  |
| MMP07  | Mounting plate                    | 1  |   |  | E3003WR   | Solenoid  | 1   |  |
| M003   | Pump mount (04)                   | 1  |   |  | E3006A  | • 1/4"x3/4" Bolt  | 2   |  |
| A001L  | 15" Jack                          | 2  |   |  | E3006D  | • 1/4" Lock nut   | 2   |  |
| 7001L  | Long left upper arm (32-1/2")     | 1  |   |  | E3009   | Dielectric grease   | 1   |  |
| 7001R  | Long right upper arm (32-1/2")    | 1  |   |  | H2007   | Cable ties  | 12  |  |
| 6004   | Upper arm brace                   | 1  |   |  | All of the above indented items included in bag # 3                   |   |   |  |
| MSM03  | 4"x4"x27" Angle Iron Spreader Mnt | 1  |   | 22   | 2 A5002L Left standard box wing (red/yellow)                          |   | 1   |  |
| 11035  | • 5/8" Lock Nut                   | 5  |   |  | A5002R  | Right standard box wing (red/yellow)  | 1   |  |
| 11007  | • 5/8"x4" Bolt                    | 2  |   | 21   | R1000   | Rubber cutting edge (11")   | 2   |  |
| 11057  | •5/8"x21/2"Bolt                   | 3  |   | 19   | X11003  | • 1/2"x1-3/4" Bolt  | 8   |  |
| 11005  | + 1/2"x3-1/2" Bolt                | 4  |   |  | X11038  | 1/2" Structural washer  | 8   |  |
| 11038  | 1/2" Structural washer            | 4  |   |  | X11018  | • 1/2" Lock nut   | 8   |  |
| 11018  | • 1/2" Lock nut                   | 4  |   | 20   | X11001  | • 5/16"x1-1/2" Bolt   | 8   |  |
| 5006   | Flag/Pr. (includes 2 S-hooks)     | 1  |   |  | X11036  | • 5/16" Lock nut  | 8   |  |
| • All of the above indented items included in bag # 1+(07) |                                   | 7)RS   |   |  | X11011  | • 5/16" Oversized washer  | 8   |  |
|  |                                   |  |   |  | All of the above  | ve indented items included in bag # 4   |   |  |
|  |                                   |  |   |  |   |   |   |  |
|  |                                   |  |   |  |   |   |   |  |
|  | (Ref.                             | (Ref. No. refers to drawing, pg. 2, installation | (Ref. No. refers to drawing, pg. 2, installation instru | (Ref. No. refers to drawing, pg. 2, installation instructions- | (Ref. No. refers to drawing, pg. 2, installation instructions—Qty rep | (Ref. No. refers to drawing, pg. 2, installation instructions—Qty represents no. of | (Ref. No. refers to drawing, pg. 2, installation instructionsQty represents no. of parts required for each plow.) | (Ref. No. refers to drawing, pg. 2, installation instructions—Qty represents no. of parts required for each plow.) |



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#### SNOWMAN MODELS 70+RS, 80+RS ISTALLATION INSTRUCTIONS

Bolts should be finger tight until instructed to tighten. Use standard methods and practices when attaching snowplow.

IMPORTANT: PRIOR TO INSTALLING THE HITCH. INSPECT THE TRUCK FRAME **CRACKS** AND **OTHER** FOR DEFECTS, AND MAKE ANY **NECESSARY REPAIRS.** 

## Installing Hitch and Mounting Plate:

- 1. Remove vehicles existing hitch and replace with vehicle specific hitch from Snowman Snowplow. Follow manufacturer's installation instructions.
- 2. Slide the two Knife mounts into receiver hitch mounts and pin. Refer to plow assemble picture on page 2 (reference No. 9).

3. Bolt the Mounting plate to the Knife mounts with 8-5/8"x4" bolts and polylock nuts. (reference No. 12) Note: The Knife mount backing plates are mounted on the plow side of the mounting plate acting as a support washer. (reference No. 15)

#### Installing Power Unit/Harness:

- 1. Place the power unit mount (reference No. 27) with the motor end resting on the right side of the mount. Align the mounting holes on the power unit with the holes in the bottom of the mount. Adjust the pump mount up or down to get the preferred height.
- 2. Locate the black (-) cable on the 3 ft. pump harness. Place one 3/8" lock washer on one of the 3/8"x3/4" bolts provided. Insert the bolt though the eyelet at the end of the cable. Screw the bolt up through one of the mounting holes on the power unit mount and into the corresponding hole on the bottom of the power unit. CAUTION: Care should be taken to avoid over tightening, which could break the aluminum pump housing.
- 3. Place the second 3/8" lock washer on the remaining 3/8"x3/4" bolt. Screw the bolt up through the second mounting hole in the power unit mount and into the corresponding hole on the power unit.

- 4. Locate the red (+) cable on the 3 ft. pump harness. Connect the eyelet at the end of the red cable to the 1/4" post located on the top right side of the power unit motor.
- 5. Locate the orange wire at the end of the pump harness. Connect it to the lead wire off the center lift coil on the pump. Disregard the remaining red and green wires at the end of the harness.
- 6. Attach two 9/16" boss O-ring swivels to the oil ports on the pump being not to over tighten.
- 7. Fill the reservoir 3/4 full (normal operating level) with "John Deere Low Viscosity Hy-Gard" (approximately 3 quarts). Another oil of equal weight may be substituted for Hy-Gard or whatever is recommended for your front plow will work.

Important: Snowman
Snowplow, Inc. recommends
"John Deere brand Low
Viscosity Hy-Gard
Transmission and Hydraulic
Oil". May be purchased at
your local John Deere Dealer
(four, 1-gallon containers).

- 1. Locate the cable end of the harness that will connect to the battery and cab remote control. Tape the cables together with electrical tap for easier installation.
- 2. Beginning at the back of the vehicle, decide on where you want to start installing the harness (i.e. run it through a plug in the bumper, or between the bumper and the vehicle.)
- 3. Using the cable ends that you taped together as the lead end, run the harness along the vehicle's frame channel from the back of the vehicle to the front, ending up at the battery. Untape the cables.



**CAUTION:** Keep cables away from any wear points of heat source.

4. Run the harness remote cord through an outlet in the firewall of the cab. Look for and outlet underneath the cab and towards the front. If there is no existing outlet, a hole can be drilled through the firewall. CAUTION: Make sure there are no wires or hidden objects in the area that you will be drilling through. Connect the remote cord to the remote control in the cab.

#### **Installing Vehicle Harness:**

5. Run the fused wired to a spare fuse spade in the fuse panel so that it is connected live when the vehicle ignition is on. When the vehicle ignition is turned off, the remote should be dead.

IMPORTANT: Regular cleaning, re-greasing (using dielectric grease) and sealing of all connections is necessary to maintain correct grounding and amp flow for optimum operating performance of the unit.

#### Solenoid Installation:

- 1. Locate a metal area under the hood of the vehicle on the inside of the fender to mount the solenoid. The location must be within 2 feet of the positive post on the battery.
- 2. Drill two 5/6" holes at this location.
- 3. Using the two 1/4"x3/4" bolts and two 1/4" lock nuts, mount the solenoid in a vertical position with the solenoid cap pointing down.
- 4. Connect one end of the 2 ft. battery cable to the solenoid post located on the side of the solenoid that is pointing towards the front of the vehicle. DO NOT CONNECT THE CABLE TO THE BATTERY AT THIS TIME.
- 5. Connect the ground cable the 25 ft. vehicle harness cables to the (-) negative post on the

battery. Connect the (+) positive (or hot power cable) to the solenoid post located on the side of the solenoid that is pointing towards the rear of the vehicle.

- 6. Locate the brown wire with a 3/8" eyelet on the end that splints out of the harness, and connect it to the small post on top of the solenoid.
- 7. Gather up excess vehicle harness cable length and secure it with cable ties at a location away from heat and wear points.
- 8. Plug the 3 ft. lead from the pump into the vehicle harness at the bumper.

#### Assembling the Plow:

- 1. If not preassembled, bolt the carbon steel cutting edge to the moldboard using nine 1/2"x3-1/2" carriage bolts and nine 1/2" lock nuts for 7 ft. models, ten bolts and nuts for 8 ft. models.
- 2. If not preassembled, bolt the left lower arm and the right lower arm to the moldboard using two 5/8"x4" bolts, two 5/8" structural washers and two 5/8" lock nuts. NOTE: Left and right long lower arms are required for vehicles with beds over 34" in height. The long arms may need to be cut off at the top in order for the upper arm brace to fit.

IMPORTANT: The left lower arm and the right lower arm must be mounted so that the long sides of the spring mounts are pointing towards each other, or the two inner springs will not clear.

- 3. Attach the upper arms and upper arm brace to the lower arms with four 1/2"x3-1/2" bolts, four 1/2" structural washers and four 1/2" lock nuts.
- 4. Attach the upper arms to the left and right pivot hitches with two 5/8" hitch pins.
- 5. If not preassembled, hook the four springs to the spring mounts located on the lower arms. Hook the other end of the springs to the four 5/8"x6-3/4" eyebolts provided. Thread one nut on each evebolt. Insert the evebolts into the four spring mounts located along the top lip of moldboard. Place a 5/8" structural washer and the second nut on each eyebolt and tighten down.

#### **Installing Cylinders and Hoses:**

- 1. With the adjustable ends of the cylinders pointed towards the back of the truck, fasten the front ends of the two cylinders to the Mounting plate using one 1"x4" bolt and 1" lock nut for each cylinder. (Reference No. 17)
- 2. Pull the adjustable end of the cylinders out and fasten them to the upper arms using one 1"x4" bolt and one 1" lock nut for each cylinder. **CAUTION:** *To avoid*

possible damage to the cylinder, do not over tighten nuts.

- 3. Place the four 3/8" standard swivel fittings provided, in the oil ports located at each end of the cylinders (female outlets facing the front of truck)
- 4. Standing at the back of the truck facing forward, attach two of the 48" hydraulic hoses provided, to the standard swivel fittings located on the adjustable end of the cylinders. Run the hoses across the top of the hitch to the center mount and connect them to the outside ends on one tee fitting.
- 5. Attach one 1/4" standard swivel fitting to the third end of the tee fitting and then attach one 48" hose to the standard swivel fitting. Standing behind the power unit box with the power unit reservoir closest to you, connect the other end of the 48" hose to the boss fitting located on the left side of the power unit.
- 6. Connect two more 48" hydraulic hoses to the ends of the cylinders that are pointing towards the front of the truck. Run the hoses across the top of the hitch to the center mount. Connect the ends of the two hoses to the outside ends of the other tee fitting provided. Attach the 1/4" standard swivel fitting to the third end of the tee fitting.

- 7. Connect the last 48" hose to the 1/4" standard swivel fitting on the third end of the tee fitting.
- 8. Standing behind the power unit box, with the pump reservoir closest to you, connect the other end of the 48" hose to the boss fitting located on the right side of the power unit.
- 9. Secure all hoses to the hitch with cable ties provided.

#### **System Check-out:**

- 1. Tighten all bolts, hoses and fitting using standard methods and practices.
- 2. Attach the loose end of the 2ft. battery cable to the (+) positive post on the truck battery.
- 3. Check to see that all bystanders are a safe distance from the plow to avoid possible injury.
- 4. Raise the plow to its maximum height, and then lower the plow until the cylinder ram is fully retracted.
- 5. Check oil level in reservoir. Oil may have to be added as air is removed. Reservoir level should be approximately 1/4 full with the plow raised to its maximum height, and 3/4 full when completely down.
- 6. Repeat step #3 until air has been removed. Check oil level in

- reservoir each time step #3 is repeated.
- 7. Plow should be kept level at all times. To make adjustments to one or both sides of the plow, retract or extend the adjustable end of the cylinders.
- 8. Place the vinyl power unit cover on the power unit and secure.

## CORRECT INSTALLATION IS IMPORTANT!

With full 1,450 lbs. of pump pressure applied, the cutting edge of the plow should be at a 90 degree angle with the shop floor. Correct angle is achieved by adjusting the standard lower arms (or long lower arms for beds over 32" in height).

## Box Wings and Extension Wings:

- 1. With full down pressure applied to the plow, mount the wings to the moldboard with the eight 1/2"x1-3/4" bolts, eight 1/2" structural washers and eight 1/2" lock nuts provided. (Same bolts, washers and nuts are used for both styles of wings.)
- 2. Attachment of the rubber cutting edge to each wing will require four 5/16"x1-1/2" bolts, four 5/16" oversized washers and four 5/16" lock nuts. (Same bolts, washers and nuts are used for both styles of wings.)

- 3. Place the rubber cutting edge against the steel wing and use the wing holes for the drilling pattern. Place the oversized washers on the bolts. Use a 5/16" drill bit and an air impact wrench to thread the bolts through the rubber.
- 4. Note: the only difference in installation of the box wing and extension wing is the placement of the rubber cutting edge. On the box wing, the rubber cutting edge is mounted to the outside of the steel wing just overlapping the steel cutting edge. On the extension wing, the rubber cutting edge is mounted on the inside of the steel wing just overlapping the steel cutting edge.

#### **VERY IMPORTANT!!!**

SWITCH THE REMOTE TO "OFF" (For models with optional joystick controller)

- When the plow is not in use.
- When unhooking from the plow (after plow has been lowered to the ground).
- When plow is in storage.

## TROUBLESHOOTING

| PROBLEM  | POSSIBLE CASE  | REMEDY  |
|--|--|---|
| Plow will not raise (will not<br>lower)<br>No sound at motor | 1) Disconnect harness cable 2) Corroded contacts at harness plug-in 3) Corroded eyelets at the pump 4) Corroded eyelets at the battery 5) If breaker fuse has been installed, possible 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  |
| Plow will not raise (will not<br>lower)<br>Solenoid clicks   | 1) Corroded contacts at harness plug-in 2) Corroded eyelets at the pump 3) Corroded eyelets at the battery   | 1) Take apart, clean & apply dielectric grease 2) Take apart, clean & apply dielectric grease 3) Take apart, clean & apply dielectric grease  |
| Plow descends in jerking motion                              | 1) Incorrect flow control settings 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 Low Viscosity Hy-Gard Oil(see pg. 4) 3) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder arm is fully retracted; repeat until all air is removed 4)Replace cylinder |
| Plow descends too fast or slams down                         | 1) Incorrect flow control 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 Low Viscosity Hy-Gard (see pg. 4) 3) Remove air by raising the plow to its maximum height, then lower the plow until the cylinder arm is fully retracted; repeat until all air is removed                       |

| Plow lowers and/or raises<br>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 2) Flush and replace with Low Viscosity Hy-Gard (see pg. 4) 3)Remove fitting, clean, replace & test; if necessary, repeat until system, is flushed clean |
|---|--|--|
| Plow will not apply correct down pressure | 1) Incorrect flow of 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   |

