



406 N. COLUMBIA  
P.O. BOX 78  
BLOOMFIELD, IA 52537  
PH: 888-766-6267  
FAX: 641-664-3438

# Installation Instructions

**Models: 70+RS, 80+RS**

**Original Mount**

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**READ BEFORE INSTALLATION!**

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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 construction or design details, specifications and prices without notice or without incurring any obligation.

VEHICLE HARNESS  
JULY 2002

# IMPORTANT!

This manual contains step-by-step 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 ordering 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**.



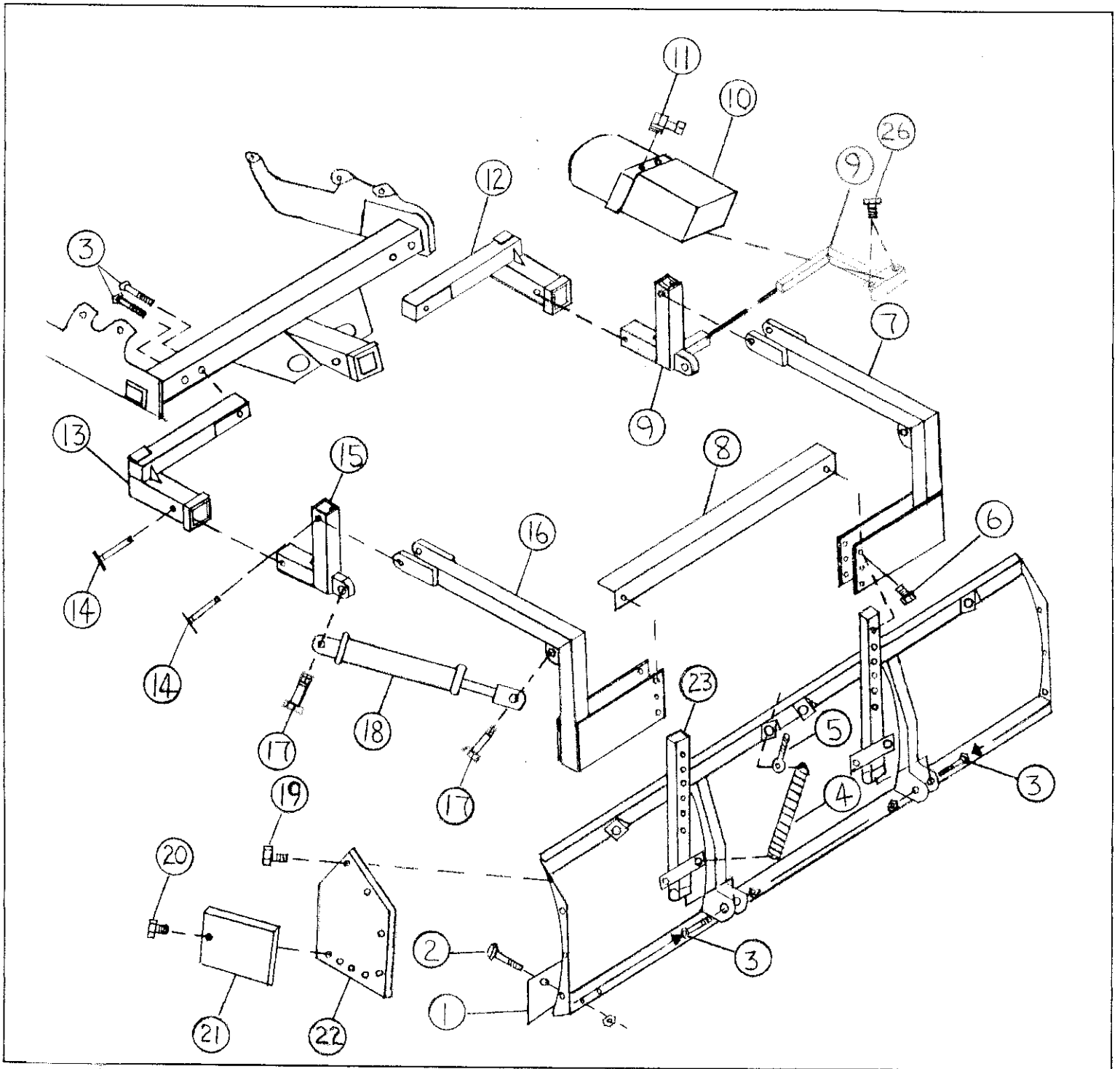
Remove plow when not in use.



Always **SWITCH THE REMOTE CONTROL TO "OFF"** before unhooking from plow, and when the plow is not in use.

## TOOLS NEEDED FOR SNOWMAN MODEL RS SNOWPLOW INSTALLATION

<b>WRENCHES:</b> 7/16" 1/2" 9/16" 5/8" 11/16" 3/4" 7/8" 15/16"	<b>DRILL BITS:</b> 3/8" 11/16"	<b>HAMMER</b> <b>CENTER PUNCH</b> <b>NEEDLE NOSE PLIERS</b> <b>SIDE CUTTERS</b> <b>ELECTRICAL WIRE PLIERS</b> <b>DRILL</b>
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### PLOW ASSEMBLY FOR MODELS 70+RS, 80+RS

- |   |   |   |
|---|---|---|
| 1) (C4003-7'; C4005-8')<br>Carbon steel cutting edge          | 8) (U6004) Upper arm brace                    | 16) (U7001L) Left upper arm (32 1/2")   |
| 2) (X11004) 1/2"x3 1/2" Carriage bolt<br>(9-70+RS) (10-80+RS) | 9) (U6003R) Pivot hitch w/power unit<br>mount | 17) (X11042) 1"x4" Bolt (4)             |
| 3) (X11007) 5/8"x4" bolt (6)                                  | 10) (SM-DB1374A) 4.0 Hyd. power unit          | 18) (H2002) Cylinder (2-2"x12")         |
| 4) (T9001) Trip spring (4)                                    | 11) (H2004) 9/16" Boss swivel fitting (2)     | 19) (X11003) 1/2"x1 1/4" Bolt (8)       |
| 5) (X11021) 5/8"x6 3/4" Eye bolt (4)                          | 12) (U6002R) Right hitch extension            | 20) (X11001) 5/16"x1 1/2" Bolt (8)      |
| 6) (X11005) 1/2"x3 1/2" Bolt (4)                              | 13) (U6002L) Left hitch extension             | 21) (R1000) Rubber cutting edge-11" (2) |
| 7) (U7001R) Right upper arm (32-1/2")                         | 14) (X11031) 5/8"x3 1/2" Hitch pin (4)        | 22) (A5002L/R) Box Wing (2)             |
|   | 15) (U6003L) Pivot hitch                      | 23) (L7003; R8003) Lower arm            |
|   |   | 26) (X11002) 3/8"x3/4" Bolt (2)         |

## PARTS LIST: RS ORIGINAL MOUNT

REF NO	PART NUMBER	DESCRIPTION	QTY	QTY B/O	REF NO	PART NUMBER	DESCRIPTION	QTY	QTY B/O
	M700103R/Y	7 Ft. 12 ga. Moldboard	1		10	SM-DB1374A	4.0 Hydraulic power unit	1	
	M800103R/Y	8 Ft. 12 ga. Moldboard	1			H3003	Hydraulic hoses (48")	6	
1	C4003	7 Ft. carbon steel cutting edge	1			PC001	Vinyl power unit cover	1	
1	C4005	8 Ft. carbon steel cutting edge	1			ET3002CS	2-way up/down toggle controller w/3' lead	1	
2	X11051	1/2"x2" Carriage bolt	70+RS	9		ET3002CSKN	Switch handle	1	
			80+RS	10	26	X11002	• 3/8"x1" Bolt	2	
	X11018	1/2" Lock nut	70+RS	9		X11022	• 3/8" Lock washer	2	
			80+RS	10	11	H2004	• 9/16" Boss swivel fitting	2	
23	L7003	Standard lower left arm	1			H2008	• Hydraulic T-fitting	2	
	R8003	Standard lower right arm	1			H2009	• 1/4" Standard swivel fitting	2	
3	X11007	5/8"x4" Bolt	2		18	H2002	Cylinder (2"x2"x12")	2	
	X11035	5/8" Lock nut	2			H2006	• 3/8" Standard swivel fitting	4	
	X11039	5/8" Structural washer	6		17	X11042	• 1"x4" Bolt	4	
4	T9001	Spring	4			X11043	• 1" Lock nut	4	
5	X11021	5/8"x6-3/4" Eye bolt (2 nut)	4				• All of the above indented items included in bag # 2+RS		
	U6000	Receiver hitch	1			EH4002	25 Ft. vehicle harness	1	
15	U6003L	Pivot hitch	1			EH4001	3 Ft. pump harness	1	
9	U6003R	Pivot hitch with power unit mount	1			E3005	2 Ft. battery cable	1	
13	U6002L	Left hitch extension	1			E3003WR	• Solenoid	1	
12	U6002R	Right hitch extension	1			E3006A	• 1/4"x3/4" Bolt	2	
16	U7001L	Long left upper arm (32-1/2")	1			E3006D	• 1/4" Lock nut	2	
7	U7001R	Long right upper arm (32-1/2")	1			E3009	• Dielectric grease	1	
8	U6004	Upper arm brace	1			H2007	• Cable ties	12	
3	X11007	• 5/8"x4" Bolt	4				• All of the above indented items included in bag # 3		
	X11035	• 5/8" Lock nut	4		22	A5002L	Left standard box wing (red/yellow)	1	
6	X11005	• 1/2"x3-1/2" Bolt	4			A5002R	Right standard box wing (red/yellow)	1	
	X11038	• 1/2" Structural washer	4		21	R1000	Rubber cutting edge (11")	2	
	X11018	• 1/2" Lock nut	4		19	X11003	• 1/2"x1-3/4" Bolt	8	
14	X11031	• 5/8"x3-1/2" Hitch pin	4			X11038	• 1/2" Structural washer	8	
	A5006	• Flag/Pr. (includes 2 S-hooks)	1			X11018	• 1/2" Lock nut	8	
		• All of the above indented items included in bag # 1+RS			20	X11001	• 5/16"x1-1/2" Bolt	8	
						X11036	• 5/16" Lock nut	8	
						X11011	• 5/16" Oversized washer	8	
							• All of the above indented items included in bag # 4		

(Ref. No. refers to drawing, pg. 2, installation instructions--Qty represents no. of parts required for each plow.)



**IMPORTANT:**  
This manual contains  
step-by-step 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.**

## **SNOWMAN MODELS 70+RS, 80+RS INSTALLATION 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 for cracks and other defects, and make any necessary repairs.

### **Installing Hitches:**

*Refer to the plow assembly picture on page 2 (ref. #3) for an example of where you will be drilling holes on the hitch in the following steps for the 5/8"x4" bolts.*

1. On the receiver side of the Putnam hitch, measure the distance between the inside edge of the left mounting plate to the inside edge of the right mounting plate. Divide the measurement in half. Measure over this distance from the inside edge of either the left or right mounting plate and mark this as the center reference point. (The center reference point should be marked on the receiver side of the hitch)
2. Measure 13" to the right of the center reference point and mark this point with a center punch; measure 13" to the left of the center reference point and mark this point with a center punch. With an 11/16" drill bit drill a hole straight through the receiver hitch at each center punched location. **NOTE: Drilling must be straight to assure alignment with the holes in the hitch extensions.**

3. Insert the left and right hitch extensions into the left and right open ends of the hitch and fasten with two 5/8"x4" bolts and two 5/8" lock nuts.
4. Measure in 1" from the inside edge of the left mounting plate and mark this point with a center punch; measure in 1" from the inside edge of the right mounting plate and mark this point with a center punch.
5. Drill two 11/16" holes at the two center punched locations, drilling straight through the hitch and hitch extensions from the receiver side of the hitch to the back side of the hitch. **NOTE: Drill straight to assure clearance for bolt and nut heads.**
6. Insert two 5/8"x4" bolts into the drilled holes and fasten with two 5/8" lock nuts.
7. Attach the Putnam receiver hitch to your vehicle following the instructions provided with the Putnam hitch.
8. Connect the pivot hitches to the left and right extensions with two 5/8" hitch pins. **Note:** One of the pivot hitches is equipped with a mount for the power unit. Connect this pivot hitch to the right hitch extension.

### **Installing Power Unit/Pump Harness:**

1. Set the power unit box on the shop bench with the notched side of the power unit box facing you. Place the power unit in the power unit box with the motor end resting in the left side of the box. Align the mounting holes on the power unit with the holes in the bottom of the box.
2. Locate the power unit mount that extends from the right pivot hitch. Place the power unit and box on the mount with the power unit motor pointed towards the truck. Align all mounting holes.

3. 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 through 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.**
4. 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.
5. 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.
6. Locate the orange wire at the end of the pump harness. Connect it to the lead wire off of the center lift coil on the pump. Disregard the remaining red and green wires at the end of the harness.
7. Attach two 9/16" boss O-ring swivels to the oil ports on the pump **being careful not to over tighten.**
8. Fill the reservoir 3/4 full (normal operating level) with "Lubriplate Special Pour Hydraulic" (approximately 3 quarts). Another oil of equal weight may be substituted for Lubriplate, or whatever is recommended for your front plow will work.

**IMPORTANT:** 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).

## Installing Vehicle Harness:

1. Locate the cable ends of the harness that will connect to the battery and cab remote control. Tape the cables together with electrical tape 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 cable away from any wear points or heat source.

4. Run the harness remote cord through an outlet in the firewall of the cab. Look for an 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.
5. Run the fused wire 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 5/16" 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 of 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 splits 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 eyebolt. Insert the eyebolts into the four spring mounts located along the top lip of the 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 right and left pivot hitches using one 1"x4" bolt and one 1" lock nut for each cylinder.
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 overtighten 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 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 one 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 fittings using standard methods and practices.
2. Attach the loose end of the 2 ft. 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, 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 all 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 power unit box lid on the power unit box and secure with the two wing nuts provided.

### **C**ORRECT 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 cutting edge.

**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 CONTROL TO "OFF"

- 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

# TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Plow will not raise (will not lower) No sound at motor	<ol style="list-style-type: none"> <li>1) Disconnected quick connect</li> <li>2) Corroded contacts at quick connect</li> <li>3) Corroded eyelets at pump</li> <li>4) Corroded eyelets at battery</li> <li>5) If breaker fuse has been installed, possibly blown breaker</li> </ol>	<ol style="list-style-type: none"> <li>1) Connect quick connect plug-in</li> <li>2) Clean &amp; apply dielectric grease</li> <li>3) Clean &amp; apply dielectric grease</li> <li>4) Clean &amp; apply dielectric grease</li> <li>5) Check for bare or exposed wire &amp; repair, replace fuse</li> </ol>
Plow will not raise (will not lower) Solenoid clicks	<ol style="list-style-type: none"> <li>1) Corroded contacts at quick connect</li> <li>2) Corroded eyelets at pump</li> <li>3) Corroded eyelets at battery</li> </ol>	<ol style="list-style-type: none"> <li>1) Take apart, clean &amp; apply dielectric grease</li> <li>2) Take apart, clean &amp; apply dielectric grease</li> <li>3) Take apart, clean &amp; apply dielectric grease</li> </ol>
Plows descends in jerking motion	<ol style="list-style-type: none"> <li>1) Oil weight is too light</li> <li>2) Air in system</li> <li>3) Possible internal bypassing in cylinder</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace with Lubriplate Special Pour Hydraulic oil (see pg. 5)</li> <li>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.</li> <li>3) Replace cylinder</li> </ol>
Plow descends too fast or slams down	<ol style="list-style-type: none"> <li>1) Oil weight is too light</li> <li>2) Air in system</li> </ol>	<ol style="list-style-type: none"> <li>1) Replace with Lubriplate Special Pour Hydraulic oil (see pg. 5)</li> <li>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</li> </ol>
Plow lowers and/or raises too slow	<ol style="list-style-type: none"> <li>1) Incorrect fluid being used</li> <li>2) Fitting is restricted</li> </ol>	<ol style="list-style-type: none"> <li>1) Flush &amp; replace with Lubriplate Special Pour Hydraulic oil (see pg. 5)</li> <li>2) Remove fitting, clean, replace &amp; test; if necessary, repeat until system is flushed clean</li> </ol>
Plow will not apply correct down pressure	<ol style="list-style-type: none"> <li>1) Improper lower arm installation; plow cutting edge is not at correct 90 degree angle to shop floor</li> </ol>	<ol style="list-style-type: none"> <li>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</li> </ol>
Plow raises uneven	<ol style="list-style-type: none"> <li>1) Air in system</li> <li>2) Truck frame is uneven</li> </ol>	<ol style="list-style-type: none"> <li>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</li> <li>2) Make adjustments to cylinder at tie rod end</li> </ol>

## STORAGE OF PLOW IN SAFETY STAND

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. Disconnect the 25 ft. harness cable from the 3 ft. pump harness.
5. Remove the two upper arm hitch pins and the bolts at the pivot end of the cylinders
6. For the model R, remove the pump and center mount (mounted with one hitch pin). Remove the left and right pivot points (mounted with one hitch pin per pivot point).
7. For the model RS, remove the left pivot point and the right pivot point and pump (mounted with one hitch pin per pivot point).
8. Lean the plow back and insert the remaining two tubes into the stands in front of the blade.