

# **SNO-WAY**®

**SNOW & ICE CONTROL EQUIPMENT**

## **INSTALLATION & OWNER'S MANUAL**

### **PROCONTROL II™ WIRELESS OPERATING SYSTEM PACKAGE**

**99101214, 99101250, 99101251**

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# INTRODUCTION

This manual was written for the assembly, installation and maintenance of your new Sno-Way ProControl II™ Operating System. Most importantly, this manual provides an operating plan for safe use. Refer to the Table of Contents for an outline of this manual.

Please keep this manual with your machine at all times as reference material and so it can be passed on to the next owner if the machine is sold.

We require that you read and understand the contents of this manual COMPLETELY, especially the chapter on SAFETY, before attempting any procedure contained in this manual.



The Society of Automotive Engineers has adopted this SAFETY ALERT SYMBOL to pinpoint characteristics that, if NOT carefully followed, can create a safety hazard. When you see this symbol in this manual or on the machine itself, BE ALERT!, your personal safety and the safety of others, is involved.

• Defined below are the SAFETY ALERT messages and how they will appear in this manual.

	<b>WARNING</b>
FAILURE TO FOLLOW CAN RESULT IN INJURY OR DEATH.	

	<b>CAUTION</b>
Information, that if not carefully followed, can cause injury or damage to equipment!	

*NOTE: Additional information concerning the equipment or the procedure that may or may not be contained elsewhere in this manual.*

**BE AWARE!** It is illegal to remove, deface or otherwise alter the safety decals mounted on this equipment.

Record the ProControl II™ transmitter and Receiver Serial Numbers. This is information that your Dealer needs to answer questions or to order replacement parts, if needed, for your unit.

<b>NAME PLATE DATA</b>	
PROCONTROL II™ SERIAL NUMBERS:	
TRANSMITTER S.N.	_____
RECEIVER S.N. (PLOW)	_____
(FILL IN)	

<b>DEALER</b>	
NAME	_____
ADDRESS	_____
CITY	_____ STATE _____ ZIP _____
PHONE ( )-	_____
(FILL IN)	

<b>ORIGINAL PURCHASER</b>	
NAME	_____
ADDRESS	_____
CITY	_____ STATE _____ ZIP _____
PHONE ( )-	_____
(FILL IN)	

We reserve the right to make changes or improve the design or construction of any part(s) without incurring the obligation to install such parts or make any changes on any unit previously delivered.

Graphics and illustrations may be used which may show equipment and/or options not included in every installation without incurring the obligation to install such parts or make changes on units previously delivered.

Sno-Way Service Parts Manuals are available on-line or at your authorized Sno-Way dealer. Request part number 97101915 for the ProControl II™ Controller.

Factory contact information is available at [www.snoway.com](http://www.snoway.com).

# SAFETY

**BEFORE ATTEMPTING ANY PROCEDURE IN THIS BOOK, READ AND UNDERSTAND ALL THE SAFETY INFORMATION CONTAINED IN THIS SECTION. IN ADDITION, ENSURE ALL INDIVIDUALS WORKING WITH YOU ARE ALSO FAMILIAR WITH THESE SAFETY PRECAUTIONS.**

**For your safety Warning and Information Decals have been placed on this product to remind the operator to take safety precautions. It is important that these decals are in place and are legible before operation begins. New decals can be obtained from Sno-Way or your local dealer.**

**REMEMBER The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of injury to operator or bystanders and/or damage to equipment.**

**NEVER** operate Plow when under the influence of alcohol, drugs or other medications that could hamper your judgement and reactions. An accident may result in serious injury or death to other persons or yourself.

**ALWAYS** operate vehicle in a well-ventilated area. The carbon monoxide in exhaust gas is highly toxic and can cause serious injury or death.

**NEVER** allow hands, hair or clothing to get near any moving parts such as fan blades, belts and pulleys. Never wear neckties or loose clothing when working on the vehicle.

**NEVER** wear wrist watches, rings or other jewelry when working on the vehicle or individual equipment. These things can catch on moving parts or cause an electrical short circuit that could result in serious personal injury.

**ALWAYS** wear safety goggles when working on the vehicle to protect your eyes from battery acid, gasoline, and dust or dirt from flying off of moving engine parts.

**ALWAYS** be aware of and avoid contact with hot surfaces such as engine, radiator, and hoses.

**ALWAYS** wear safety glasses with side shields when striking metal against metal! In addition, it is recommended that a softer (non-chipable) metal material be used to cushion the blow. Failure to heed could result in serious injury to the eye(s) or other parts of the body.

**NEVER** allow children or unauthorized person to operate this unit.

**NEVER** exceed 45 m.p.h. when snow plow is attached to vehicle. Braking distances may be increased and handling characteristics may be impaired at speeds above 45 m.p.h.

**ALWAYS** lock the vehicle when unattended to prevent unauthorized operation of the plow.

**ALWAYS** check the job site for terrain hazards, obstructions and people.

**NEVER** exceed 10 m.p.h. when plowing. Excessive speed may cause serious injury and damage of equipment and property if an unseen obstacle is encountered while plowing.

**ALWAYS** position blade so it does not block path of headlamps beam. Do not change blade positions while traveling. An incorrect plow position blocking headlamp beam may result in an accident.

**ALWAYS** check surrounding area for hazardous obstacles before operating this unit.

**ALWAYS** inspect the unit periodically for defects. Parts that are broken, missing or plainly worn must be replaced immediately. The unit, or any part of it should not be altered without prior written approval of the manufacturer.

**ALWAYS** insert the cylinder lock when plow is not in use. If the cylinder lock is not installed, the plow blade could inadvertently drop and cause serious injury.

**ALWAYS** shut off the vehicle engine, place the transmission in Neutral or Park, turn the ignition switch to the "OFF" position and firmly apply the parking brake of the vehicle before attaching or detaching the blade from the vehicle or when making adjustments to the blade.

**ALWAYS** inspect lift system bolts and pins whenever attaching or detaching the plow, and before traveling. Worn or damaged components could result in the plow dropping to the pavement while driving, causing an accident.

**ALWAYS** keep hands and feet clear of blade and A-Frame when attaching or detaching plow.

**NEVER** stand between the vehicle and blade or directly in front of blade when it is being raised, lowered or angled. Clearance between vehicle and blade decreases as blade is operated and serious injury or death can result from blade striking a body or dropping on hands or feet.

**NEVER** work on the vehicle without having a fully serviced fire extinguisher available. A 2.5 kg (5 lb) or larger CO<sup>2</sup> or dry chemical unit specified for gasoline, chemical or electrical fires, is recommended.

**NEVER** smoke while working on the vehicle. Gasoline and battery acid vapors are extremely flammable and explosive.

**NEVER** use your hands to search for hydraulic fluid leaks; escaping fluid under pressure can be invisible and can penetrate the skin and cause a serious injury! If any fluid is injected into the skin, see a doctor at once! Injected fluid **MUST BE** surgically removed by a doctor familiar with this type of injury or gangrene may result.

**REMEMBER it is the owner's responsibility for communicating information on the safe use and proper maintenance of this machine.**

# FCC STATEMENT OF CONDITIONS

This device:

Contains Transmitter Module FCC ID: TFB-SIFELX2

Contains Transmitter Module IC: 5969A-SIFLEX2

This device is granted for use in Mobile only configurations in which the antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all person and not be co-located with any other transmitters except in accordance with FCC and Industry Canada multi-transmitter product procedures.

This device complies with part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

# INSTALLATION

## Receiver Installation on Plow Power Pack

1. Loosen the fasteners holding the pump cover in place and then lift and remove the pump cover.
2. Remove the 1/4" cap screw and the 1/4" nylock nut from the top of the receiver mounting bracket.
3. With the 6-pin in-circuit programming pins positioned on the top of the unit (See Figure 1-1), slide the receiver module into the receiver mounting channel with the exposed wires of the receiver box positioned toward the hydraulic reservoir (See Figure 1-2).

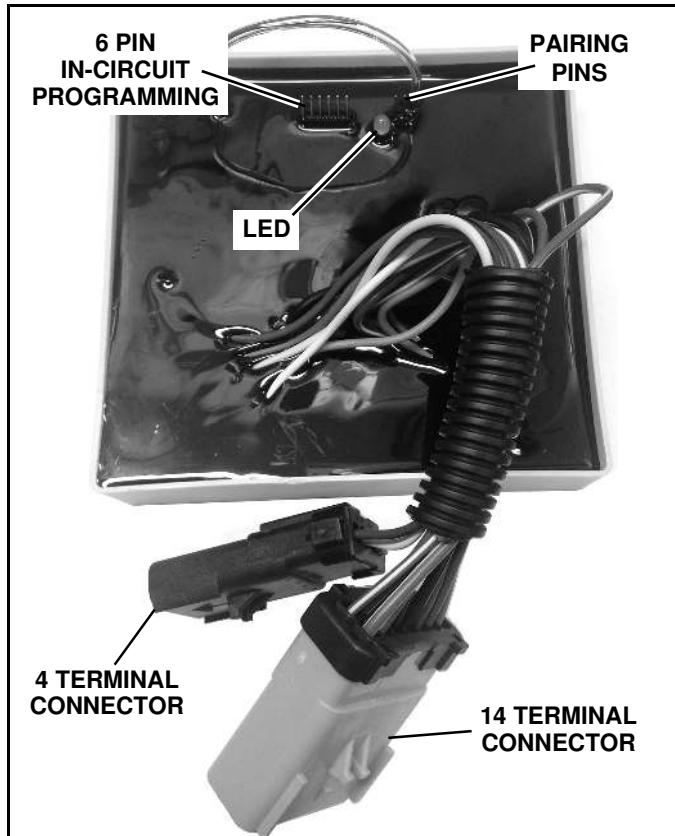


Figure 1-1

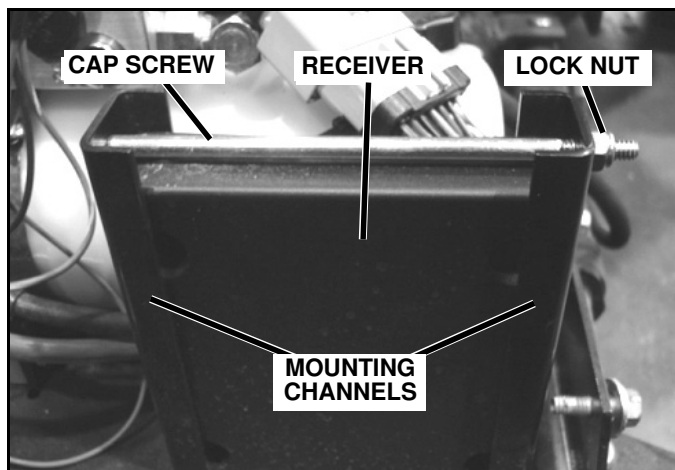


Figure 1-2

4. Re-install the cap screw and nylock nut previously removed.

5. Connect the 14 terminal connector on the receiver module to the snow plow power pack. On 29VHD, Revolution HD and R Models only, also connect the four (4) terminal connector on the receiver to the connector on the snow plow power pack.



## CAUTION

The connectors must be plugged in correctly. The connectors are keyed; you must line up the slots with the tabs when plugging in the connectors. Failure to do so WILL CAUSE FAILURE of the receiver. When plugged in correctly, the wire colors on each connector will match.

## Receiver Installation on Salt Spreader

### 6 & 9 Cubic Foot Spreaders

1. Remove the receiver bracket from the package and place it on the driver's side vertical tube of the spreader frame. The bracket should be located to the inside of the frame about midway along the tube. Make sure that both the spreader motor harness and vibrator harness can reach the receiver module (See Figure 1-3).

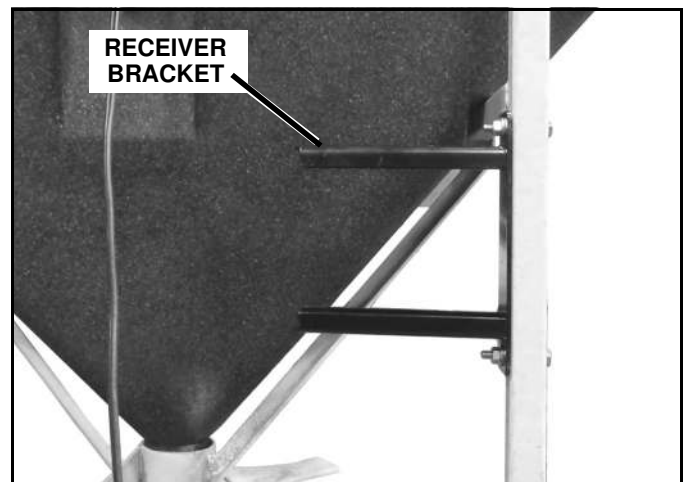


Figure 1-3

2. Using the bracket as a guide, mark and drill two 9/32" holes all the way thru the tube (If a 9/32" drill is not available use a 5/16"). Secure bracket to the spreader with (2) 1/4" X 1-3/4" hex head cap screws, (2) 1/4" flat washers and (2) 1/4" lock nuts (See Figure 1-3).

3. Slide the receiver into the bracket with the 6-Pin in circuit programming pins located vertically in the open end of the bracket. Secure the receiver with a 1/4" x 6" hex head cap screw and a 1/4" lock nut (See Figure 1-4).

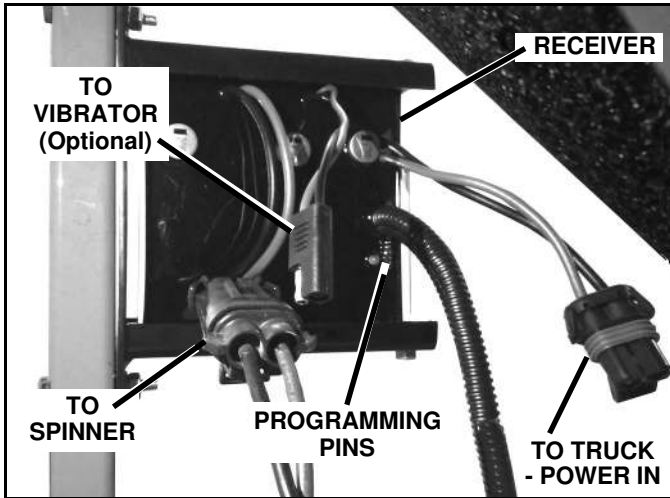


Figure 1-4

4. Plug the spreader spinner motor harness and vibrator harness (optional) into the mating plugs on the receiver.

#### 4 Cubic Foot Spreader

1. Remove the receiver bracket from the package and place it under the top lip of the spreader hoper on the driver's side (See Figure 1-5).

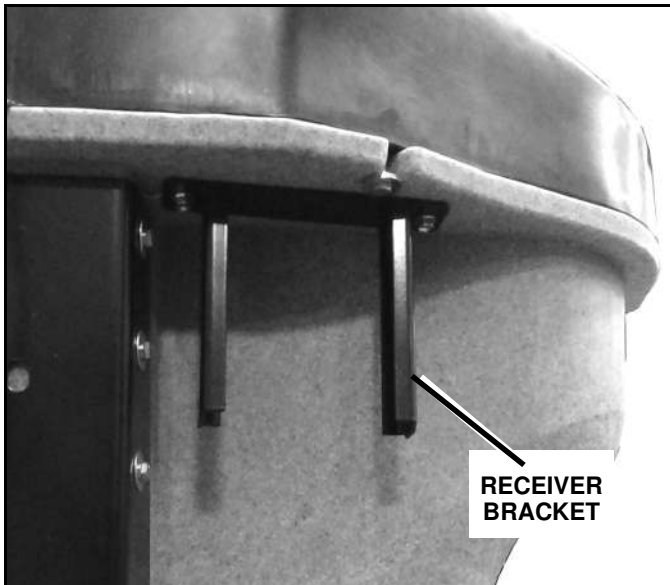


Figure 1-5

2. Secure the receiver by driving (2) 5/16" self-drilling screws thru the holes in the bracket and into the hopper.

3. Slide the receiver into the bracket with the 6-Pin in circuit programming pins located on the bottom. Secure the receiver with (1) 1/4" x 6" hex head cap screw and (1) 1/4" lock nut (See Figure 1-6).

4. Plug the spreader spinner motor harness and vibrator harness (optional) into the mating plugs on the receiver (See Figure 1-6).

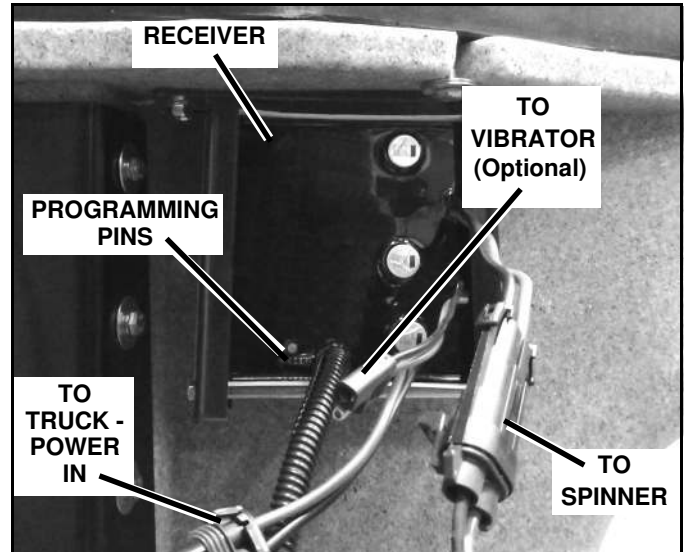


Figure 1-6

#### Power Harness Installation On Salt Spreader

##### Power Harness

1. Remove the power harness (two wire) and power harness parts bag from the control package.
2. Disconnect the NEG. (-) battery cable from the battery.

*NOTE: Take extra time needed to plan the routing of wiring harnesses. Make sure harnesses do not interfere with, or contact, any moving parts and route wires away from excessive heat areas. Read all the instructions carefully to ensure a safe and professional installation.*

### WARNING

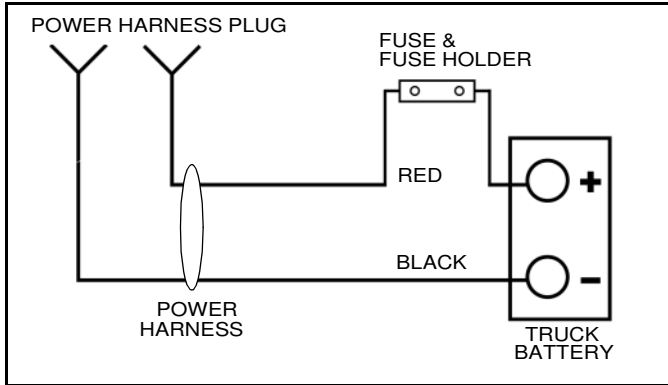
**Disconnect the vehicle NEG. (-) battery cable while performing steps 2 - 8 to avoid serious bodily injury from electrical shock, fire, or explosion. Do not re-connect battery cable until indicated in step 9.**

**FAILURE TO FOLLOW CAN RESULT IN INJURY OR DEATH**

3. Determine a route from the rear bumper of the vehicle, along the frame rails, and through the vehicle engine compartment to the battery. Make sure to leave enough harness length at the back bumper to reach the power connector on the spreader receiver.

4. Mount the fuse holder near the battery using (2) #10 x 1" self-tapping screws.

5. Take the cover off of the fuse holder. Place the end of the 6 in. long power wire with the small ring terminal on one stud. (See Figure 1-7).



**Figure 1-7**

6. Attach the other end of one 6 in. long power wire to the POS. (+) terminal on the battery.

*NOTE: In the next step, if the Power Harness does not have the ring terminals crimped on, any excess harness length that isn't needed to reach the battery, can be cut off. Then, the ring terminals that are bagged separately onto the harness can be crimped onto the red and black wires of the harness. Crimp the smaller ring terminal on the red wire and the larger ring terminal on the black wire.*

7. Attach the power harness red wire to the other terminal of the fuse holder.

8. Place the fuse between the two studs and secure with the supplied nuts. Replace the cover.

9. Attach the power harness black wire to the NEG. (-) terminal on the battery and re-connect the negative battery terminal.

10. Spray all terminal connections with a battery terminal protective coating.

11. Secure harness with plastic tie straps.

12. Place di-electric grease in the contacts of the plug at the rear of the truck and install protective cap.

## Pairing Receiver and Transmitter

Every transmitter has its own unique code. In order to operate the plow or spreader, the receiver must "learn" the transmitters code. The receiver will only function with a transmitter it has been paired with. That way several wireless units with different transmitter codes can function in the same area. Each receiver can "learn" one transmitter code.

1. Ensure vehicle bumper connection is made and vehicle supply voltage is 12VDC. Also verify that the 14 and 4 pin (when present) connectors are connected from the receiver module to the power unit. A red blinking LED indicates the receiver has power and is not communicating with a transmitter.

2. Turn the ProControl II™ transmitter on, and put it into Pairing Mode by pressing and holding the Down pressure button or pairing button for at least 5 seconds, but not more than 10 seconds. When the button is released, the backlights will flash continuously and the transmitter will be in pairing mode.

*NOTE: Refer to "OPERATION" section for button details.*

3. Place a metal object across the 2 pairing pins on the receiver module. (See Figure 1-1). Remove the object and the LED on the receiver will alternately flash green and red to indicate the receiver is in pairing mode.

4. When the receiver and transmitter are paired, the DP light (plow) or salt light (spreader) will flash three times and the LED on the receiver will flash green three times and then flash red. When this happens, push the DP (down pressure) button or pairing button to exit pairing mode.

*NOTE: If the DP light or salt light on the transmitter does not flash and the LED on the receiver does not flash green three times before going back to flashing red, the pairing attempt has failed. Go back to step 1 and repeat steps.*

5. After exiting pairing mode, the back lights and DP light or salt light on the transmitter will flash alternately 4 times. Then the DP light or salt light on the transmitter will flash three times and the signal light on the transmitter and LED light on the receiver will change to flashing green. Once this occurs the control is ready to use.

*NOTE: Each transmitter can be paired to one plow receiver and one salt spreader receiver at the same time. The pairing process is the same for either receiver.*



# OPERATION

## Theory of Operation

1. The Sno-Way ProControl II™ Operating System includes two key components. The first is a hand held transmitter. When a switch is actuated, the ProControl II™ transmitter sends a radio signal out to the snow plow indicating which operation is to be performed, such as 'Raise', 'Swing Right' and 'DP On'.

2. The second key part of the ProControl II™ system is the receiver module on the plow. It receives the signal from the ProControl II™ transmitter and processes the signal to open or close valves so that the hydraulic system of the plow power unit will perform the required operations.

3. 12V DC power is fed from the battery terminal of the start solenoid to the individual valve coils and the receiver module. The ground wires for the start solenoid and valve coils return to the circuit board of the receiver where switches on the circuit board open or close the ground to complete or break the circuit to each coil and solenoid.

*NOTE: This is a ground switching system and has power on the coils as soon as power is connected to the plow. The receiver module energizes the coils by providing a ground path to them.*

4. On ProControl II™ wireless systems, a rechargeable battery is located in the ProControl II™ transmitter. This powers the circuit board of the ProControl II™ transmitter and supplies the low voltage power needed to process the signal from the switches on the transmitter and send a signal back to the receiver on the plow.

## ProControl II™ Operation Basic Functions – All Plows

The ProControl II™ transmitter contains all of the control functions necessary for the operation of your Sno-Way snow plow and receiver mounted salt spreader.

1. The center button just above the joystick (Figure 1-8, A) is the power button. Press and hold the power button for three seconds to turn on the control. To turn the control off, hold the power button until the backlights go out.



**Figure 1-8**

2. The joystick in the center of the ProControl II™ transmitter (Figure 1-8, B) operates the "Raise", "Lower", "Left" and "Right" functions. Pushing joystick forward (towards the top) will "Lower" the plow. Pulling the joystick towards the bottom will "Raise" the plow. This is the default setting for the control. The control can be programmed to reverse the Raise and Lower functions so that pushing the joystick forward will raise the plow and pulling the joystick back will lower the plow (see step 4).

3. Pushing the joystick left will cause the plow to do a "Left" function. Pushing the joystick right will cause the plow to do a "Right" function.

4. The button just below the joystick (Figure 1-9, C) is the "Down Pressure" button. Pressing the button will turn on the down pressure and an orange indicator light on the button will glow (DP light). Pressing the button again will turn the down pressure off.



Figure 1-9

The down pressure button is also used to reverse the raise and lower functions and to place the transmitter in pairing mode.

To enter pairing mode, press and hold the down pressure button for more than 5 seconds but less than 10 seconds. When in pairing mode the back-lights will flash continuously.

To exit pairing mode, push and release the down pressure button. See "Pairing Receiver and Transmitter" on page 8 for more information.

To reverse the up / down function, hold the Down Pressure button for 10 seconds. The backlights will flash twice to indicate the change has taken place. To return to the default setting, simply press and hold the button for 10 seconds.

## Basic Functions: V-Wing™ and Revolution HD™ Plows

1. The button on the upper left side of the joystick (Figure 1-10, D) is the Driver's Side Wing button. Push the top button to perform a driver's side wing extend function. Push the bottom button to perform a driver's side wing retract function.



Figure 1-10

2. The button to the upper right side of the joystick (Figure 1-10, E) is the Passenger's Side Wing button. Push the top button to perform a passenger side wing extend function. Push the bottom button to perform a passenger side wing retract function.

## Basic Functions: Salt Spreaders

The top row of buttons on the ProControl II™ transmitter are used to control a Sno-Way tailgate spreader.

1. The button on the top row, left of center (Figure 1-11, G) is the on/off button for the spinner motor. To start or stop the spinner press and release the button. When the motor is running, the light behind the button (salt light) will turn on. The light will blink slowly in speed step 1.

As the speed is increased, the light will blink faster until reaching speed step 4 (top speed) where the light will be on constant.

The salt light and DP light will flash together if there is a jam condition and then shut off. The spinner motor always runs at full speed (speed step 4) when it is first started. After a few seconds it will slow to the speed step it was in when it was stopped.

When the control is in a speed lower than speed step 4 holding the button down will put the spreader into blast mode (speed step 4) until the button is released.



Figure 1-11

2. The button on the top row, right of center (Figure 1-11, F) is the vibrator button. Holding the button down will turn on the vibrator (if equipped). Releasing the button will turn it off.

3. The button on the left of the top row (Figure 1-11, H) is the speed reduction button. Pushing and releasing the button will drop the spinner speed one step. There are a total of four speed steps available.

4. The button on the right of the top row (Figure 1-11, I) is the speed increase button. Pushing and releasing the button will raise the spinner speed one step. There are a total of four speed steps available.

## Extended Functions: All Plows

### Programming a Macro

1. A macro is a user programmable function that remembers pre-programmed functions. Example: User may program the plow to raise and do a left swing. This capability is built into every ProControl II™ transmitter and can be used with all plows. The ProControl II™ transmitter can store up to 3 macro functions.

*NOTE: All macros are based on time. Macros can be programmed and reprogrammed as needed.*

2. Locate the three Macro buttons (Figure 1-12) labeled A, B, and C. Press and hold the macro button you want to program until the back lights flash twice (approximately two seconds). You are now in learning mode.



Figure 1-12

3. Perform functions that are desired. The maximum number of steps per macro is six.

*NOTE: All macros are based on time. In other words, the macro will tell the plow to open and close valves and or solenoid at timed intervals. Therefore, when programming a macro, it is best to start at the extreme positive position to ensure the pump runs long enough to position the plow properly. For a lower function, hold the joystick in the lower position for at least two seconds.*

4. Press the macro button for the macro you are programming to exit learning mode. (Figure 1-12, A, B or C) depending on desired storage location for macro.

5. Test macro by pushing the macro button for the macro just created. Repeat steps 2-4 if desired results have not been achieved.

6. Macro programming complete.

*NOTE: For safety a running macro can be stopped by pushing any plow function button.*

## Common Macro Programming

### Straight Plow

1. Up-2-seconds, Left-4-seconds – Angle left
2. Up-2, Left-4, Right 2,– Straight
3. Left-4, Down-2, – Angle left drop plow

### V-Wing™ Plow

1. Up-3, Left and right extend-4. – Scoop
2. Left and right retract-4, Down-2 – Vee
3. Left extend and right retract 4, down-2 – Full Right

### Revolution™ Plow

1. Up-3, left-3, left retract-2, right retract-2, right extent-1 – Main blade left, left wing full back, right wing at 45x
2. Up-3, left-4, right 2, left and right retract-2 (similar to v function on V-wing), left and right extend-1 – Main blade straight wings at 45x
3. Up-3, left-4, right 2, left and right extend-3 – Transport

## Pro Control II™ Operation Basic Functions – Salt Only

1. The center button just above the large middle button (Figure 1-13, A) is the power button. Press and hold the power button for three seconds to turn on the control. To turn the control off, hold the power button until the backlights go out.

2. The large button in the middle of the control (Figure 1-13, B) is the on/off button for the spinner motor. To start or stop the spinner press and release the button. When the motor is running, the light behind the button (salt light) will turn on. The light will blink slowly in speed step 1.

As the speed is increased, the light will blink faster until reaching speed step 4 (top speed) where the light will be on constant.

The salt light will flash fast 4 times if there is a jam condition and then shut off.

The spinner motor always runs at full speed (speed step 4) when it is first started. After a few seconds it will slow to the speed step it was in when it was stopped.

When the control is in a speed lower than speed step 4 holding the button down will put the spreader into blast mode (speed step 4) until the button is released.

3. The button on the top row, center (Figure 1-13, C) is the vibrator button. Holding the button down will turn on the vibrator (if equipped). Releasing the button will turn it off.

4. The button on the left of the top row (Figure 1-13, D) is the speed reduction button. Pushing and releasing the button will drop the spinner one speed step. There are a total of four speed steps available.

5. The button on the right of the top row (Figure 1-13, E) is the speed increase button. Pushing and releasing the button will raise the spinner one speed step. There are a total of four speed steps available.

6. The button just below the large middle button (Figure 1-13, F) is the pairing button. To enter pairing mode, press and hold the down pressure button for more than 5 seconds but less than 10 seconds. When in pairing mode the back-lights will flash continuously.

To exit pairing mode, push and release the down pressure button. See "Pairing Receiver and Transmitter" on page 8 for more information.

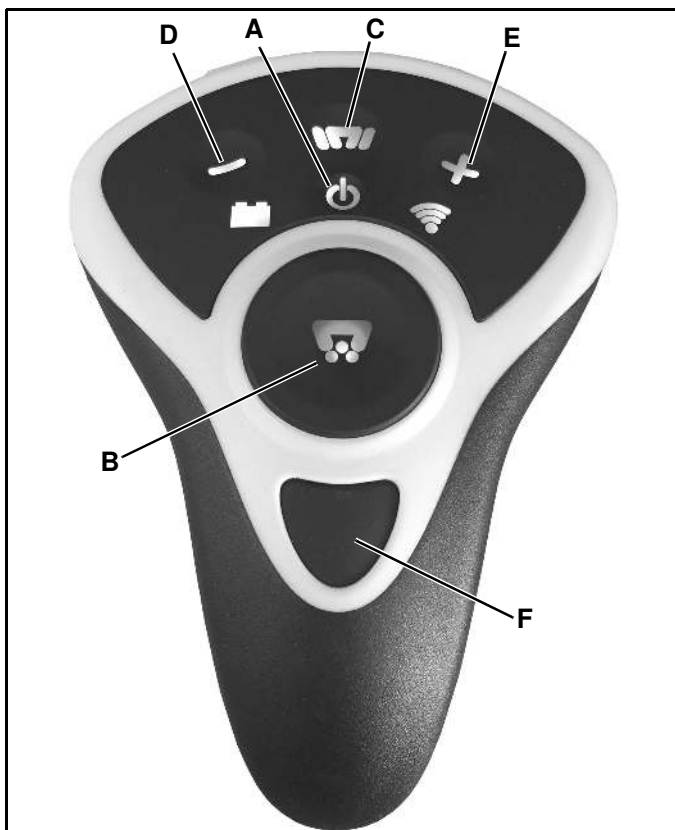


Figure 1-13

## Start/Stop Procedure for ProControl II™ Transmitters

To prevent the ProControl II™ transmitter from inadvertently and accidentally being switched off, the power button is to be held approximately 2 seconds to be turned off.

## Power Saving Mode

The ProControl II™ transmitter uses a very small amount of electrical current anytime it is 'On'. To minimize current use when the ProControl II™ transmitter is inactive, the system has a 'Sleep' mode to shut itself down. If no control function is pressed for a time period of approximately 20 minutes, the ProControl II™ transmitter will shut down by itself. When this happens, the power button must be pressed and held to switch the transmitter back "ON."

## Diagnostic Functions

Your ProControl II™ transmitter and receiver has built in diagnostic capability. The following charts list common visual signals and what they indicate.

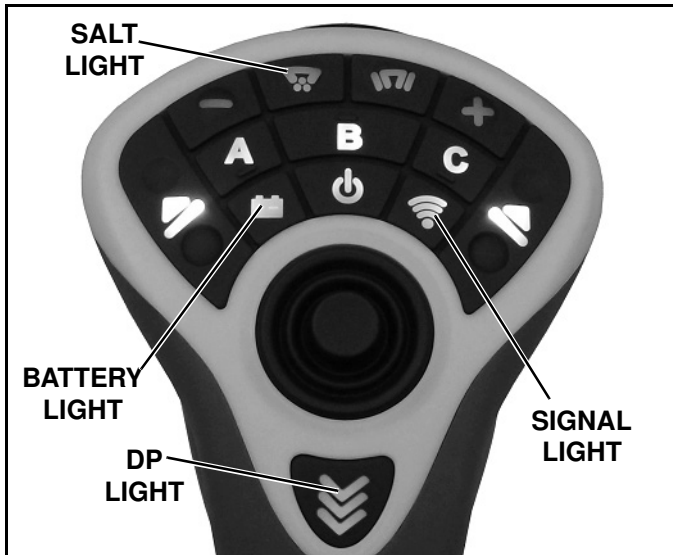


Figure 1-14(All Plows)

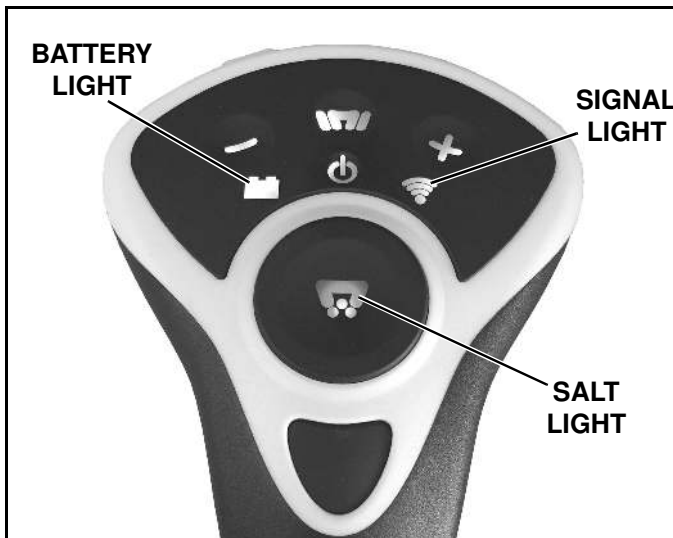


Figure 1-15(Salt Only)

TRANSMITTER	
LIGHT INDICATION	DESCRIPTION
BACK LIGHT ON	TRANSMITTER IS TURNED ON
BACK LIGHT FLASHING	CONTROL IN PAIRING MODE
DP LIGHT FLASHES 4 TIMES	COMMUNICATION ESTABLISHED WITH PLOW RECEIVER
DP LIGHT FLASHES ALTERNATELY WITH BACK LIGHT 4 TIMES	COMMUNICATION LOST WITH PLOW RECEIVER

SALT LIGHT AND DP LIGHT FLASH TOGETHER 4 TIMES OR ON SALT ONLY CONTROL SALT LIGHT FAST FLASHES 4 TIMES	SPREADER JAM
SALT LIGHT FLASHES 4 TIMES	COMMUNICATION ESTABLISHED WITH SALT SPREADER RECEIVER
SALT LIGHT FLASHES ALTERNATELY WITH BACK LIGHT 4 TIMES	COMMUNICATION LOST WITH SPREADER RECEIVER
BATTERY LIGHT BLINKS	LOW BATTERY
BATTERY LIGHT ON	BATTERY IS CHARGING
BATTERY LIGHT TURNS OFF	BATTERY IS CHARGED
SIGNAL LIGHT FLASHES GREEN	SIGNAL IS STRONG / TRANSMITTER IS COMMUNICATING WITH RECEIVER
SIGNAL LIGHT FLASHES YELLOW	SIGNAL IS WEAK / TRANSMITTER IS COMMUNICATING WITH RECEIVER
SIGNAL LIGHT ON RED	SIGNAL IS LOST / TRANSMITTER IS NOT COMMUNICATING WITH RECEIVER

### RECEIVER

LIGHT INDICATION	DESCRIPTION
RED FLASHING LED	RECEIVER HAS POWER NO COMMUNICATION WITH TRANSMITTER
GREEN FLASHING LED	RECEIVER HAS POWER AND COMMUNICATION WITH TRANSMITTER
LED FLASHES GREEN 1 TIME AND THEN FLASHES RED ON POWER UP	RECEIVER CONFIGURED FOR STRAIGHT PLOW
LED FLASHES GREEN 2 TIMES AND THEN FLASHES RED ON POWER UP	RECEIVER CONFIGURED FOR WING PLOW
LED FLASHES GREEN 3 TIMES AND THEN FLASHES RED ON POWER UP	RECEIVER CONFIGURED FOR V-PLOW
LED FLASHES GREEN/RED ALTERNATELY	RECEIVER IS IN PAIRING MODE
LED FLASHES GREEN THREE TIMES	RECEIVER HAS PAIRED WITH TRANSMITTER

## ProControl II™ Charging / Battery Maintenance and Replacement

Your ProControl II™ transmitter uses a rechargeable battery pack. When the battery is low, the battery light (Figure 1-16, A) will flash. To charge the battery, plug the charger into the Mini USB port at the top of the transmitter (Figure 1-16, B).

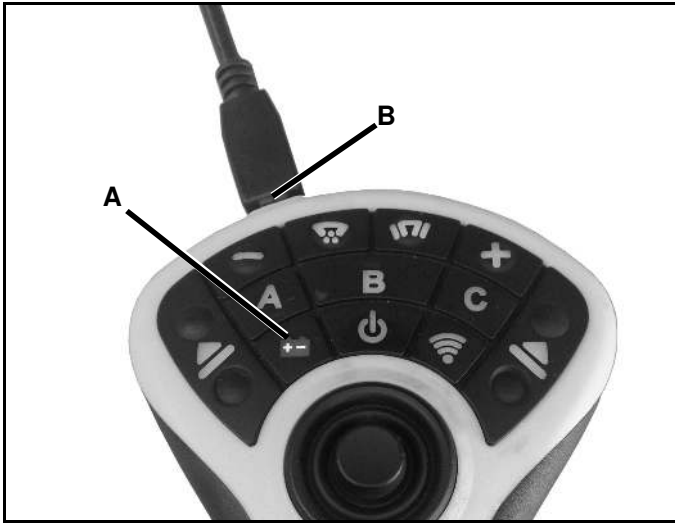


Figure 1-16

While the battery is charging, the Battery Light will be on constant. When charging is complete the battery light will shut off. You can use the Pro Control II™ transmitter while the battery is charging.

The charging circuit is equipped with over-charge protection. However, when the transmitter is on and in use during the end of the charge cycle, certain circumstances could cause a high voltage condition which could over time potentially damage the battery. To prevent damage, the transmitter will stop communicating with the receiver to warn the operator.

The stop in communication will be indicated by the DP light and back light flashing alternately 4 times and the signal light turning red. To correct, simply unplug the charger. If there is no indication of lost signal or the transmitter is off, there is no risk of damage.

*NOTE: The ProControl II™ wireless transmitter uses a Lithium-Ion rechargeable battery. It is recommended that the transmitter **not** be stored in the vehicle over-night or under circumstances where the vehicle cab temperature will fall to 0°C (32°F) or below. Temperatures below this point will inhibit the battery from charging. The transmitter can still be used with the charger plugged in even if the battery is too cold to charge. The transmitter will automatically begin charging once the battery warms up.*

To preserve the life of the battery, it is recommended that the battery be charged at least once every 3 months that the transmitter is not in use. Failure to do so could cause the battery to no longer take a charge. A new battery will need to be purchased.

Although the ProControl II™ battery is rechargeable, it will require replacement after a finite number of charge cycles. To access the battery pack, remove 4 screws securing the back cover. (See Figure 1-17). Remove back cover to expose battery pack.

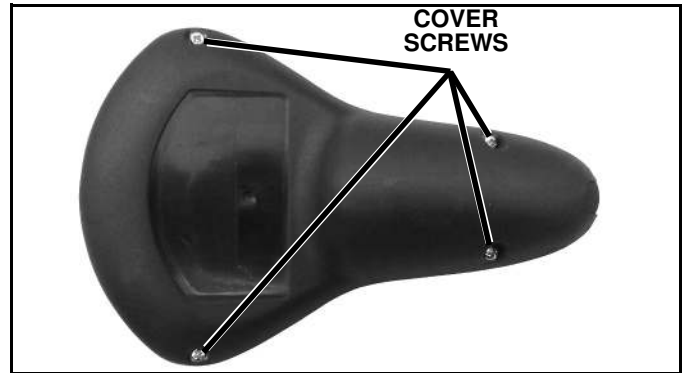


Figure 1-17

Once battery pack is exposed, move to one side to expose the 3 pin connector that connects the battery wires to the circuit board. (See Figure 1-18). Unplug connector and discard old battery. For installation, follow steps in reverse.

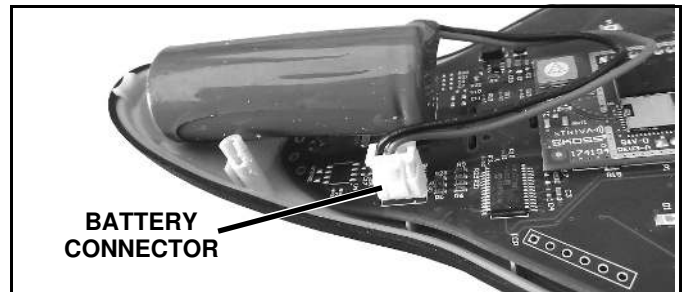


Figure 1-18

## ProControl II™ Transmitter Mounting Instructions

Your ProControl II™ transmitter comes with a cradle for mounting the transmitter on the dash.

Fasten the cradle in the desired location using the 2 screw holes. (See Figure 1-19).

*NOTE: Be certain control mounting does not obstruct items that are critical to safely operating your vehicle.*

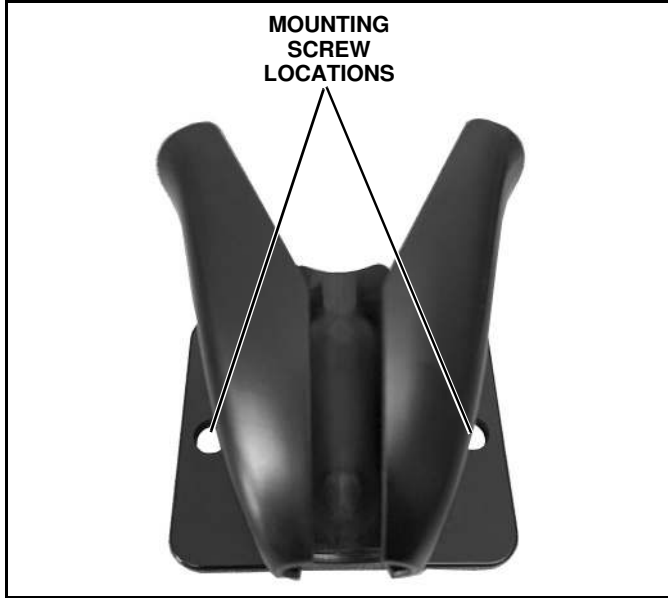


Figure 1-19

## Using the ProControl II™ to Aid in Mounting and Removing the Snow Plow

The ProControl II™ transmitter can be used near the snow plow when mounting or removing the plow with the aid of the power jackstand.

*NOTE: For proper procedure in mounting and removal of the snow plow, refer to your Sno-Way Plow Owner's Manual.*



### WARNING

When using the ProControl II™ transmitter near the plow, be especially careful of the movement of any plow components when any switch on the transmitter is actuated. Stand clear of the snow plow at all times to avoid being struck by any plow parts.

**FAILURE TO FOLLOW CAN RESULT IN INJURY OR DEATH.**

Simply remove transmitter from cab and function plow while standing at a safe distance from plow.

## Wiring Schematics

ProControl II™ system schematic diagrams are located in your products Installation & Owner's Manual.

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**SNO-WAY® INTERNATIONAL, INC.**

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**SNOW & ICE CONTROL EQUIPMENT**

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