

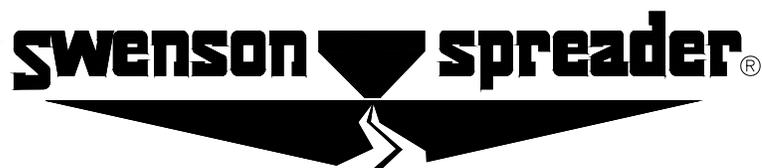
WIRELESS REMOTE CONTROLLER SUPPLEMENTAL GUIDE

SWENSON SPREADER STANDARD AND VARIABLE SPEED MODELS

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Wireless Remote Supplemental Guide
May 12, 2010 RevA



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SPREADER OPERATION

Standard Wireless Throttle Control Button Functions (Sequence of Operations)



- A. ON/Off System power activated (ready to start). Spreader engine not running. Spreader conveyor is not engaged.
- B. START (Engine Only)
1. Open fuel shut off valve on engine. CHOKE (Cold engine.) Hold down for 5 seconds to move the throttle actuator to the choke position.

NOTE: Choking a warm engine may not be necessary.

2. START Hold down button until engine starts.
 3. TURTLE Decreases throttle speed - adjust as engine warms up. Will stop the choke function.
 - RABBIT Increases throttle speed.
- C. TO ENGAGE SPREADER CONVEYOR
1. CONVEYOR Push CONVEYOR switch only after you are sure no one is in the hopper or near the spinner!
- D. TO CONTROL CONVEYOR SPEED
1. RABBIT Hold RABBIT to increase speed.
- Note **DO NOT** hold switch in **HI** position after the desired RPM is achieved or you will choke and/or stall the engine.
 2. TURTLE Hold TURTLE to decrease speed.

E. TO DISENGAGE SPREADER CONVEYOR

 1. CONVEYOR Push conveyor button.

- F. TO TURN ENGINE OFF (With or without conveyor running).
1. TURTLE Push throttle slow button to reduce setting to idle (this prevents engine flooding and hard starting).
 2. STOP Push STOP button and hold 5 seconds.

NOTE: OFF can be pushed at anytime during spreader operation to cut power to the unit; however, you should normally use steps under F above.

- G. Do not attempt to start the engine with the conveyor engaged.
- H. Close fuel shut off valve on engine if unit is to be transported while not running.

 **WARNING!**

1. As with all power equipment, safety is the number one concern.
2. Do not operate this equipment until you fully understand how it functions.
3. Before starting engine, be sure that no one is near the rear of the unit and that no one is inside the unit!
4. Do not start the engine or engage the conveyor (which is interconnected to the spinner) until everyone is clear from moving parts and flying material from the spinner.

Swenson Spreader Standard Wireless Controller For use with Gas Engine packages

The wireless controller is a compact unit with two parts. One part is the **Base Unit (Receiver)** and the other part is the **Transmitter (Hand Held Controller)**. The Transmitter is used to send a corresponding signal to the Base Unit to act as a remote switching device.

Set-up and Operation

The Swenson Wireless Controller comes factory programmed. That means matching the Base Unit to the Transmitter has been done by Swenson Spreader. This gives a matched (1 of 16 million combinations @ 418MHz) interface between the Transmitter and Base Unit. See Figures 1 & 2 for Transmitter button assignments. On the 8 button Swenson Spreader Transmitter, all (8) buttons are used when programming. When programming is completed, only (5) buttons are functional (Buttons #1, #3, #4, #5, & #6) (see Fig. 1).

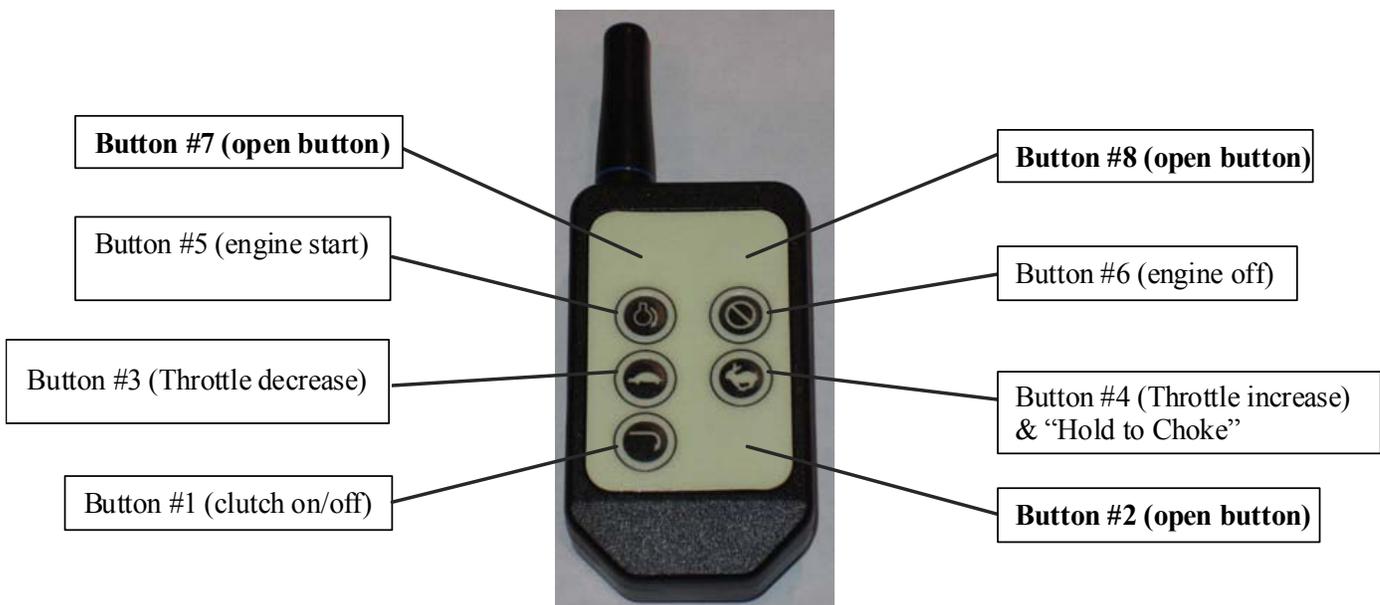


Fig. 1: Transmitter Front Button Assignments



Fig. 2: Transmitter Back Button Assignments

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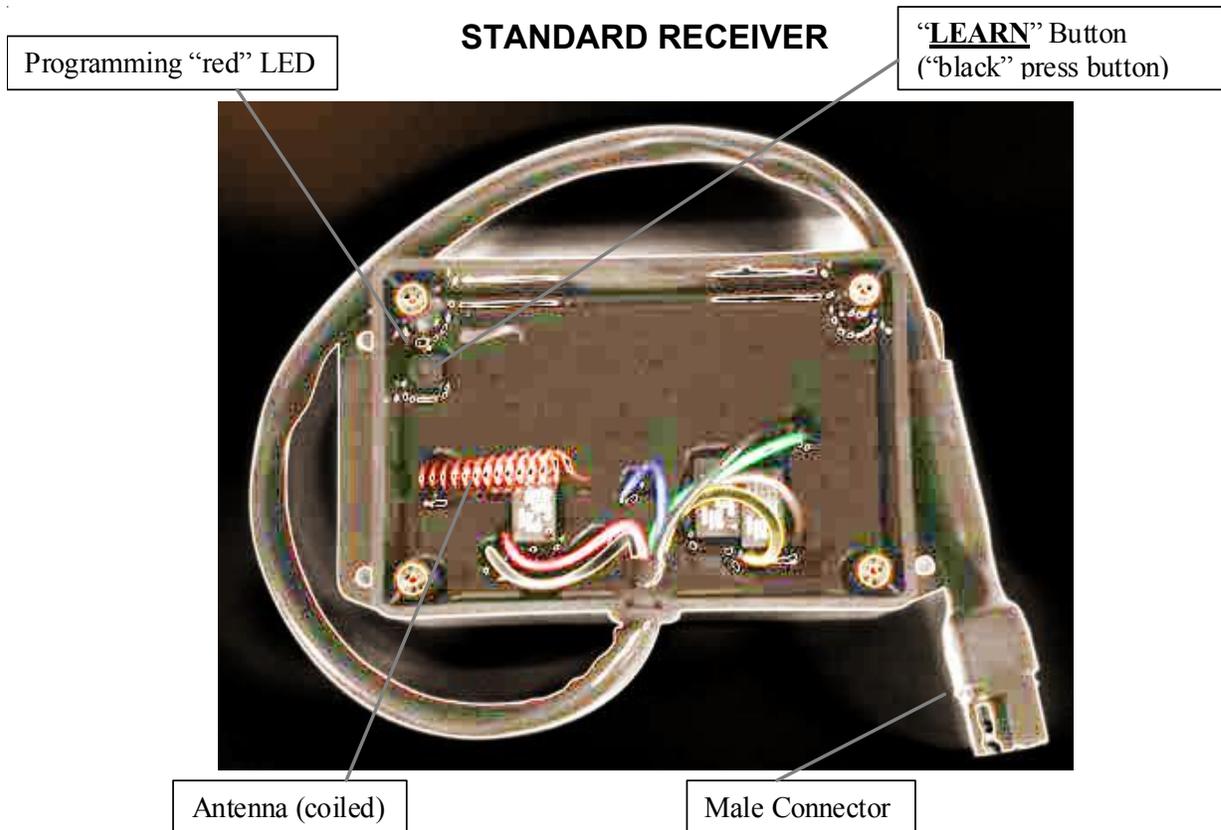


Fig. 3: Base Unit layout (Figure shown without Base Unit Cover)

Programming/Reprogramming the Transmitter and the Base Unit:

Tools needed: A small "phillips" screwdriver and a small diameter pin (paper clip).

Instructions to program Transmitter and Base Unit:

1. Remove (4) screws and cover on Base Unit.
2. Power-up the Base Unit. Connect a 12V power source to the spreader 12V battery terminals and plug the engine wire harness to the Base Unit wire harness (see Male Connector in Fig. 3). **DO NOT DISCONNECT THE BATTERY TERMINALS** from the 12V source when engine is running.
3. On the backside of the Transmitter depress the "**ADD**" button (see Fig. 2) using a small pin or paper clip – You will see a "blue" LED start to blink (for approximately 15-17 seconds).
4. On the front side of the Transmitter press all (8) buttons (see Fig. 1). There is no certain order to press the buttons. Firmly press each button, separately. Perform this step before the 15-17 seconds are up (before "blue" LED stops blinking). The Transmitter is now programmed and has created its own 1 in 16 million address. Once the "blue" LED stops blinking, this step is completed.
5. On the Base Unit (see Fig. 3) press the black "**LEARN**" button. The "red" LED will start to blink (for approximately 15-17 seconds).
6. On the front side of the Transmitter you only need to press Button #1 (clutch on/off), once. Perform this step before the 15-17 seconds are up (before "red" LED stops blinking). The base unit has now recognized the Transmitters unique 1 in 16 million address. Once the "red" LED stops blinking, this step is completed.
7. Verify the (5) functional buttons (Buttons #1, #3, #4, #5, & #6) on the Transmitter are working with the Spreader Unit by pressing each button, individually (the Base Unit "red" LED will flash when a Transmitter button is pressed). If Transmitter buttons are not working, repeat steps 3 – 8 or see the Trouble shooting directions.
8. When Transmitter buttons are functioning properly, re-assemble the Cover on the Base Unit with the (4) screws. Your Swenson Wireless Controller is now ready to use!

Swenson Spreader Variable Speed Wireless Controller For use with Electric Packages

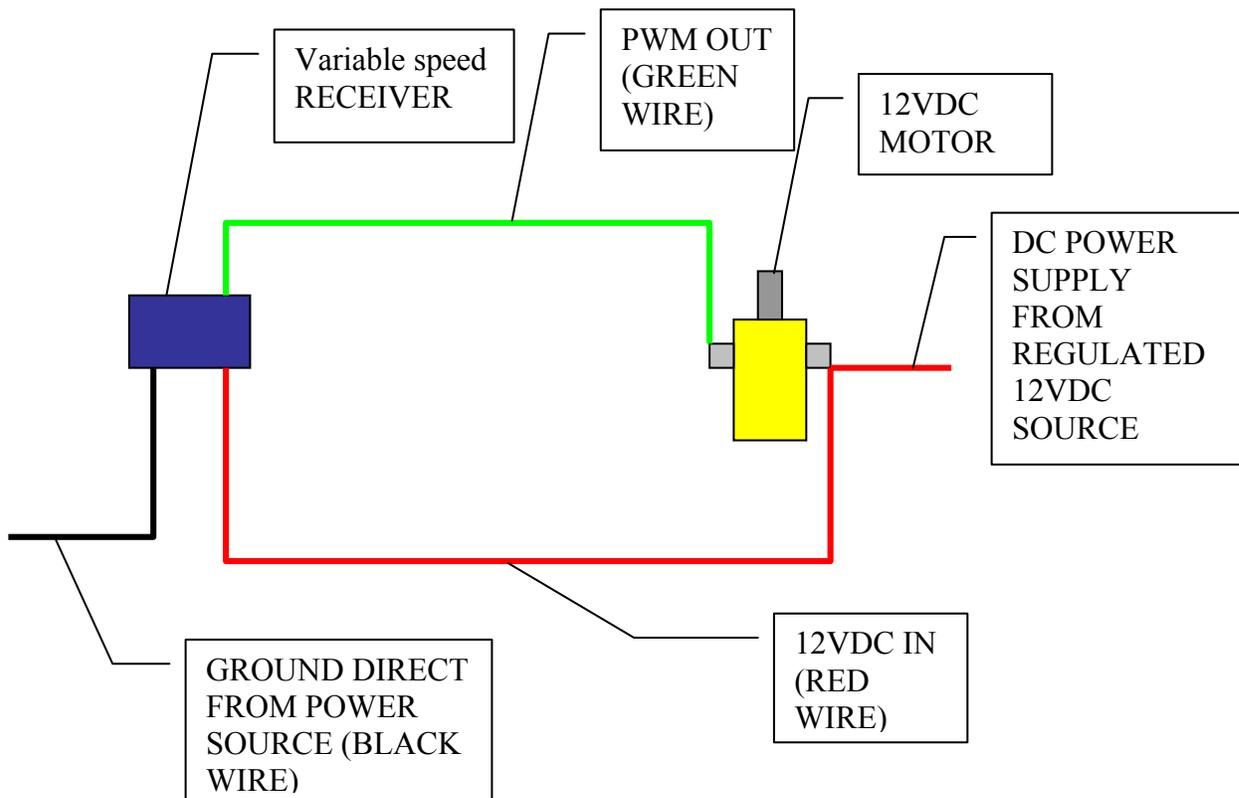
How it Works:

The Variable speed Wireless DC Motor Controller provides RPM control for a single, 2 pole DC motor that can output 180 amps for up to 5 seconds and a continuous amperage of up to 80 amps. The speed or RPM control is done by providing the user 5 outputs, approximately 1/5 of the maximum motor RPM. The also incorporates a full RPM feature the runs the motor full speed for 6 seconds and then automatically shuts off and an E-Stop.

To protect the motor and electronics, the variable speed has built-in safety circuits. These include:

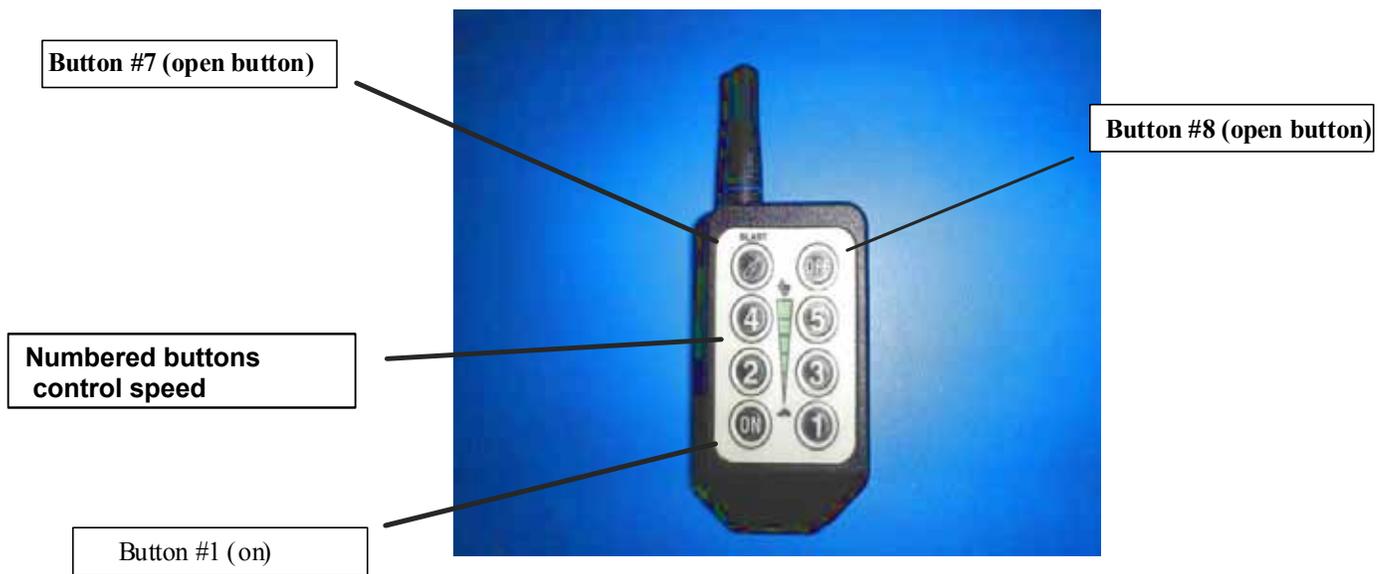
- Automatic shut down if motor is locked up. How this is done is if the receiver senses a current draw of more than 180 amps for more than 10mS the unit will shut down from 1 to 30 seconds.
- Automatic shut off if the current draw does not drop below 80 amps after 5 seconds. Once again, the receiver will shut down for 1 to 30 seconds.

Typical Wiring Connection Diagram



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OPERATION:



VARIABLE SPEED TRANSMITTER

Shown above is a typical transmitter for wireless operation of a 12VDC motor. The button functions are as follows:

1. **ON/** This button turns on the receiver unit and will allow the receiver to function. It also will stop the unit, but does not shut down the receiver.
2. **#1/** Slow speed setting of approximately 1/5th of full motor speed.
3. **#2/** Speed setting or approximately 2/5th of full motor speed.
4. **#3/** Speed setting or approximately 3/5th of full motor speed.
5. **#4/** Speed setting or approximately 4/5th of full motor speed.
6. **#5/** Full Speed.
7. **Blast/** A timed 6 to 8 second full speed with auto shut down.
8. **OFF/** Shuts down the receiver unit. Must be turned on using Button #1

Programming Transmitter to Receiver:

The following are the step by step procedures for setting the unique address between the transmitter and receiver or adding extra transmitters to the receiver (up to 40 transmitters).

1. Disconnect green PWM wire from motor.
2. On the backside of the Transmitter, use a paperclip and insert it in the hole next to the clear blue window. Once the programming button is depressed, a blue LED will begin to blink for 15 seconds. Flip the Transmitter over and firmly depress all 8 buttons starting with the ON button within 15 seconds. Now the Transmitter has acquired a 1 in 16 million address.
3. Next step is to remove the receiver box cover noting the drain hole positions in the cover. Hook up the Power (red wire) and Ground (black wire) to a 12VDC power source. Inside the box next to the red LED depress the black programming

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button. The red LED will begin to flash for 15 seconds. Take the Transmitter while the red LED is flashing and firmly depress the ON button within the 15 seconds. Now the unique address of the Transmitter will only be recognized by that matched receiver. The red LED will automatically shut off after 15 seconds. To make sure the programming procedure was successful, depress any of the Transmitter buttons and the red LED in the receiver should light. Re-install the cover noting drain hole position and re-connect the PWM (green wire) to the motor. The Variable speed controller is now ready to operate the DC motor.

Specifications:

- Up to 180 amp output for up to 5 seconds.
- Continuous output of up to 80 amps.
- 5 motor speed outputs of approximately 1/5, 2/5, 3/5, 4/5 and 5/5ths of motor current draw.
- Built in E-Stop using OFF button.
- Built-in over current safety protection. If a lock-up condition occurs at the motor causing the motor to draw more than 200 amps the unit will automatically shut down and must be turned back on using the ON button after the circuit temperature drops to an acceptable range taking 1 to 30 seconds. **Warning:** If this situation continues to re-occur the operator needs to check for reasons why the motors will not turn.

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VARIABLE SPEED RECEIVER

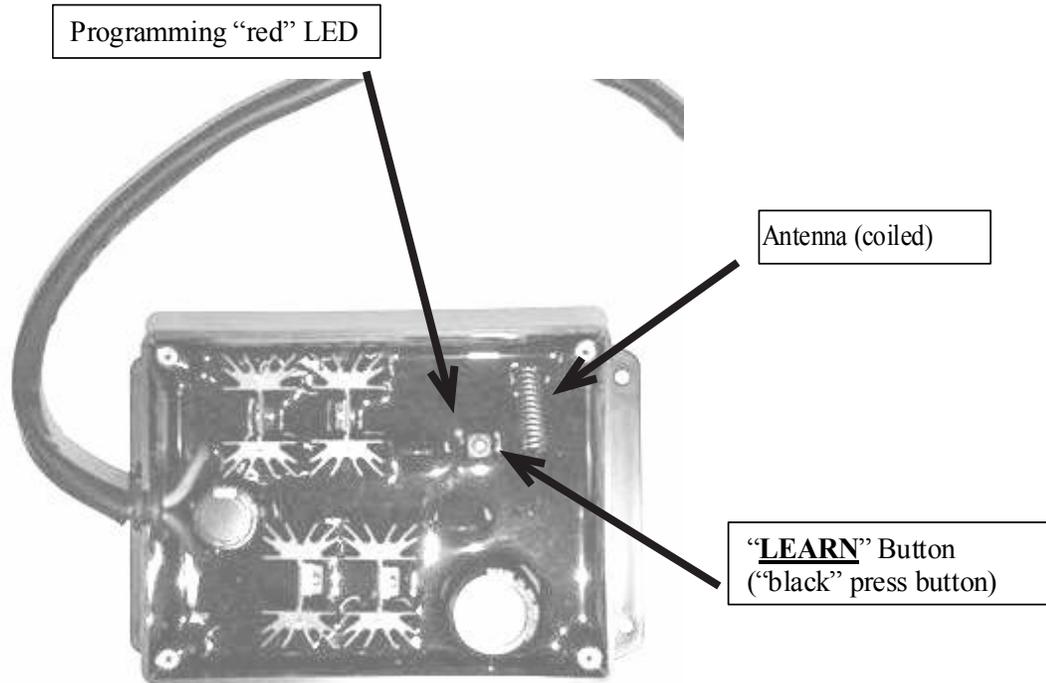


Fig. 3: Base Unit layout (Figure shown without Base Unit Cover)

Programming/Reprogramming the Transmitter and the Base Unit:

Tools needed: A small "phillips" screwdriver and a small diameter pin (paper clip).

Instructions to program Transmitter and Base Unit:

1. Remove (4) screws and cover on Base Unit.
2. Power-up the Base Unit. Connect a 12V power source to the spreader 12V battery terminals and plug the engine wire harness to the Base Unit wire harness (see Male Connector in Fig. 3). **DO NOT DISCONNECT THE BATTERY TERMINALS** from the 12V source when engine is running.
3. On the backside of the Transmitter depress the "**ADD**" button (see Fig. 2) using a small pin or paper clip – You will see a "blue" LED start to blink (for approximately 15-17 seconds).
4. On the front side of the Transmitter press all (8) buttons (see Fig. 1). There is no certain order to press the buttons. Firmly press each button, separately. Perform this step before the 15-17 seconds are up (before "blue" LED stops blinking). The Transmitter is now programmed and has created its own 1 in 16 million address. Once the "blue" LED stops blinking, this step is completed.
5. On the Base Unit (see Fig. 3) press the black "**LEARN**" button. The "red" LED will start to blink (for approximately 15-17 seconds).
6. On the front side of the Transmitter you only need to press Button #1 (clutch on/off), once. Perform this step before the 15-17 seconds are up (before "red" LED stops blinking). The base unit has now recognized the Transmitters unique 1 in 16 million address. Once the "red" LED stops blinking, this step is completed.
7. Verify the (5) functional buttons (Buttons #1, #3, #4, #5, & #6) on the Transmitter are working with the Spreader Unit by pressing each button, individually (the Base Unit "red" LED will flash when a Transmitter button is pressed). If Transmitter buttons are not working, repeat steps 3 – 8 or see the Trouble shooting directions.
8. When Transmitter buttons are functioning properly, re-assemble the Cover on the Base Unit with the (4) screws. Your Swenson Wireless Controller is now ready to use!

Transmitter Battery Replacement

The Transmitter uses a standard CR2032 lithium button cell battery. In normal use it will provide 1 to 2 years of operation. To replace the Transmitter battery, gently press and slide the battery cover off. Remove the battery by sliding (NOT lifting) it out from underneath the retainer (see Fig. 4). Observe the battery polarity when replacing (“+” showing face up).

Notes:

1. If the battery loses power or is removed the Transmitter and Base Unit may need to be reprogrammed (see reprogramming Transmitter and Base Unit instructions). Check Transmitter functional buttons to verify if reprogramming is necessary.
2. When removing lithium battery, please use caution to slide not lift the battery from the controller! If excess force is used to remove the battery (example: lifting the battery with a small screw driver) – the solder connections from the battery clip to the circuit board could be pried loose. This action is not covered under warranty.

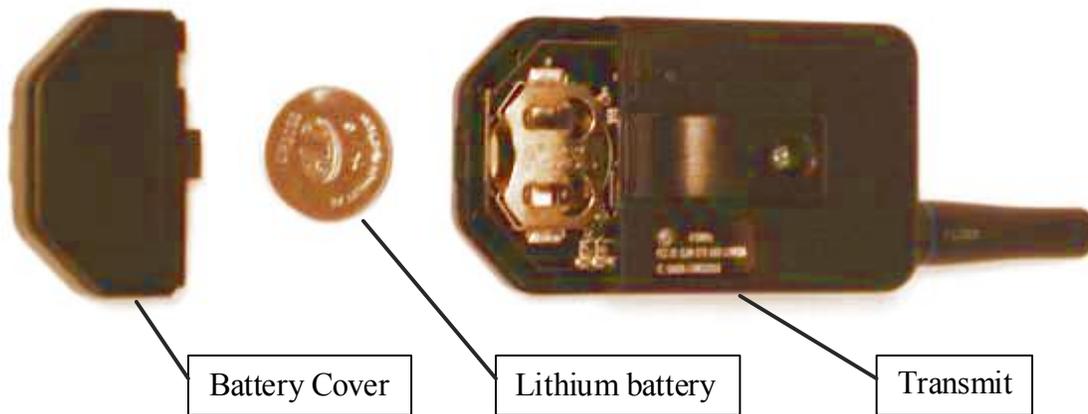


Fig. 4: Back of Transmitter with back cover and battery removed

Other Considerations

1. **Powering off the engine will not automatically power off the Clutch** (engagement of conveyer/spinner). If clutch remains engaged, after engine is turned off, it could lead to a slow electrical drain on the 12V battery. (Gas engine models only)
2. **If an unregulated voltage** (example: sparking the battery cable terminal to the 12V battery post.) **is sent to the Base Unit it could erase the Base Unit programming.** The remote may show signs of no longer working with the Base Unit. Reprogramming will be required. When 14Amps are supplied the Base Unit circuit board is designed to shut off. See additional trouble shooting comments.
3. **Only one transmitter at a time can be activated within a reception area.** Only one carrier of a particular frequency may occupy the same airspace at a given time. This means that if two transmitters are activated in the same area at the same time the signals will interfere and the decoder on the receiver will not see a valid transmission and the wireless controller will not function.
4. **Multiple Transmitters** can be programmed to (1) Base Unit.
5. To verify the Base Unit is receiving a signal from the Transmitter. Press a button on the Transmitter - “red” LED on the Base Unit will light-up.
6. Swenson Spreader, LLC has no control over the intended usage of this product. Because of that Swenson Spreader, LLC offers no written or expressed liability as to how this product is used. Swenson Spreader, LLC recommends that these units are intended for OFF ROAD USE ONLY!

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TROUBLE SHOOTING

1. **To verify the Transmitter and Base Unit are working together:** Once the base unit has power the “red” LED will come on when the Transmitter buttons are depressed (Cover of Base Unit will need to be removed to see “red” LED). If the “red” LED does not come on, the Base Unit is NOT getting a signal from the Transmitter.

Possible Solutions:

- A. Reprogramming the Transmitter and Base Unit might be required.
- B. Base Unit might not be functioning properly (see Base Unit trouble shooting below).
- C. Transmitter might not be functioning properly. (see Transmitter trouble shooting below).

2. **Base Unit Programming Lose:** If an unregulated voltage (spark) is sent to the Base Unit from a power source the Base Unit could lose its programming. The voltage spike will not damage the Base Unit or Transmitter. Unregulated voltage could generate from the following:
 - Connecting battery cables to a 12V battery source.
 - Jump starting the 12V battery.(Gas engine models only)
 - Charging the 12V battery.
 - Pull-starting the engine.(Gas engine models only)

Possible Solutions:

- A. Reprogramming the Transmitter and Base Unit may be required.
- B. Base Unit might be damaged, a new Base Unit & Transmitter will need to be ordered.

3. **Base Unit does not function properly:** (example: “red” LED will not light up when “**LEARN**” button is depressed on Base Unit).

Possible Solutions:

- A. Check/verify voltage of 12V is being supplied by the 12V battery. Lower voltages than 12V will not allow the Base Unit to function properly.
- B. Confirm all wires on engine wire harness are secure and properly connected.
- C. Base Unit could be damaged, a new Base Unit & Transmitter will need to be ordered.

4. **Transmitter does not have power:** (example: “blue” LED will not light up when “**ADD**” button is depressed on Transmitter).

Possible Solutions:

- A. Verify tool diameter (example: paperclip) to depress Transmitter “**ADD**” button is small enough to enter the “**ADD**” button hole.
- B. Verify the lithium button cell battery polarity is correct (“+” will be facing up).
- C. If the Transmitter is 1-2 years old, check the lithium battery voltage with a meter or replace the battery as needed (CR2032 lithium button cell battery).
- D. Transmitter could be damaged, a new Transmitter will need to be ordered.

5. **General troubleshooting:**

- A. Try to Program/reprogram the Transmitter and Base Unit.
- B. Verify the Ground wires (all wires) are secure.
- C. Check connections to the components that the unit is trying to operate using a voltmeter.

WARNING

1. **Disconnecting 12V Battery Cables/Terminals:**
 - A. DO NOT DISCONNECT THE BATTERY (CABLES/TERMINALS) WHEN THE ENGINE/MOTOR IS RUNNING. This could disable or permanently damage the Base Unit.

For further technical assistance please contact Swenson Spreader, LLC at (888) 825-7323 or visit us at www.swensonspreader.com to download updated Wireless Controller Instructions.



Dealers have the responsibility of calling to the attention of their customers the following warranty prior to acceptance of an order from that customer for any SWENSON® product.

WARRANTY

WHAT THIS WARRANTY COVERS

Swenson Spreader LLC (hereinafter "Swenson") is committed to assuring Customer satisfaction with the Spreader (hereinafter "Product"). Swenson warrants to the original owner (hereinafter "Purchaser") of the Product to be free from defects in material and workmanship for the following term: Swenson warrants ALL PARTS AND ASSEMBLIES to be free from defects in material and workmanship for a period of one year from the date of purchase. Installation of the Product must be in accordance with Swenson's instructions. This warranty extends to the Purchaser and may not be assigned without the prior written approval of Swenson; except a distributor may assign this warranty to the first titled owner of the Product.

If a Product has a defect in material or workmanship covered by the warranty, Swenson will (at our option) either replace or repair said part. Swenson's has sole discretion as to repair of defects covered by this warranty, or replacement of the Product. Swenson's responsibilities as described herein shall not exceed the amount of the purchase of the Product.

WHAT THIS WARRANTY DOES NOT COVER

Swenson's warranty does not extend to Product which have been misused, abused, improperly installed, repaired with non-genuine Swenson parts, improperly cared for, if materials such as lava rock or cinders are used, or for which payment has not been made. The warranty is void if repairs or alterations to the Product are made by unauthorized persons, or the Product serial numbers have been altered or defaced.

All gasoline engines and hydraulic pumps are warranted by their manufacturer and not by Swenson Spreader LLC. Electrical or hydraulic components are not to be disassembled without the express written permission of Swenson Spreader LLC.

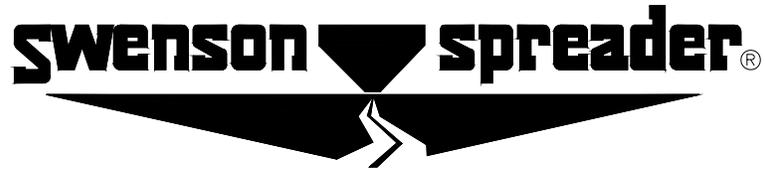
THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SWENSON'S MAXIMUM OBLIGATION AND LIABILITY UNDER THIS WARRANTY SHALL BE LIMITED TO AN AMOUNT EQUAL TO THE PRESENT PURCHASE PRICE FOR THE SWENSON PRODUCT. SWENSON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL OR OTHERWISE ARISING OUT OF BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages.

Defective parts returned to Swenson Spreader LLC must be accompanied by the following information:

RGA #	_____
Spreader Model	_____
Serial Number	_____
Date Installed	_____
Where Purchased	_____

Purchaser accepts these terms and warranty limitations unless product is returned within fifteen days for full refund of purchase price.

Effective 4/15/05



SWENSON SPREADER LLC
P.O. BOX 127
LINDENWOOD, ILLINOIS 61049-0127

PHONE: (815)393-4455
TOLL FREE: (888)825-7323
SALES & SERVICE FAX: (866)310-0300

email: swensonsales@swensonspreader.com
website: www.swensonspreader.com

**IMPORTANT
INFORMATION
ENCLOSED**