

ULTRA SR DRILL SETTING PROCEDURE

OPENER SETTINGS

The SeedMaster opener is a dual knife design. The lead knife places fertilizer and handles fracturing the soil to open the furrow. The second knife places seed. The Ultra SR drill can be ordered with a standard opener utilizing an angled carbide on the seed knife, or with an inline opener. The inline option can be ordered with either a sideband or paired row style seed knife. The packer wheel controls the depth of the seed and fertilizer knives. The opener is preset for seed and fertilizer depth. The seed depth is factory set at 3/4" below the packed surface and the fertilizer depth is factory set approximately 3/4" below and 1-1/2" to the side of the seed. The fertilizer knife depth can be increased on its own by 3/8" beyond the factory set point. This is done by removing the fertilizer knives from the opener and reinstalling each one in the bottom hole. To change depth using the Fast-Loc Depth Adjustment, simply insert the supplied flat-head "L" wrench into the lower slot on the left-hand side of the adjustment plate as pictured in Image 1. Then, insert the second wrench into the spring-loaded depth guide on the right-hand side of the adjustment plate and pry the guide back to release it from the plate's teeth. Using the decal on the side to determine the appropriate setting, move the plate up or down to your desired depth. Return the spring-loaded depth guide into the teeth of the adjustment plate and your depth will be set for that opener. The decal's depth measurements begin with "A" at approximately 1/4" below the packed surface and increase by 1/8" with each setting. To achieve the unlabeled depths, move the adjustment plate one tooth at a time past the labeled depths.

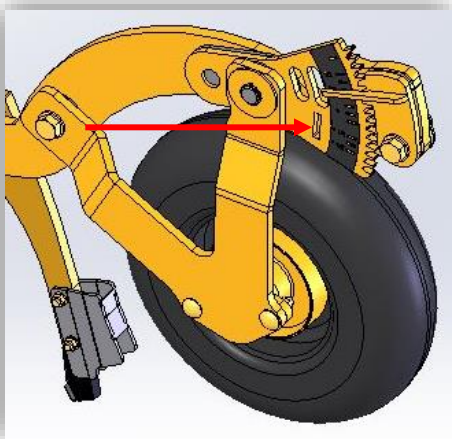
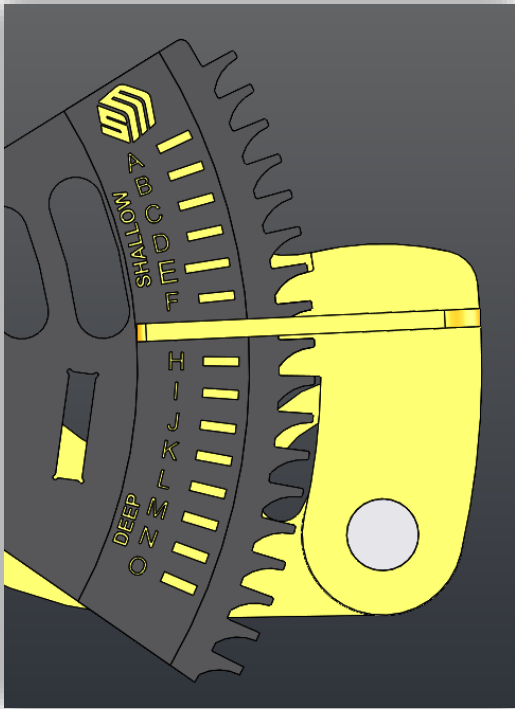


IMAGE 1

SM Icon	3/8
A	7/16
B	1/2
C	5/8
D	11/16
E	3/4
F	15/16
G	1
H	1 1/8
I	1 1/4
J	1 1/2
K	1 3/4
L	1 5/8
M	1 7/8
N	1 9/8
O	1 11/8

HYDRAULIC PRESSURE SETTINGS

The System Pressure should remain active with a continuous, constant flow adjusted from the tractor's SCV flow settings to maintain pressure in the range of 2500-2900 PSI without fluctuation. The System Pressure controls all active functions of the drill: unfolding, wing-down pressure, and any additional options.

The wing-down pressure needs to have enough pressure to allow the Ultra SR to contour properly and counteract the opener pressure. The wing down pressure can be adjusted with the system pressure active.

Note: The wing down pressure may need to be increased if the wings begin to float and not contour properly while in the seeding position. The wing down pressure may need to be decreased if the wings become too rigid while in the seeding position. Wing down can change the frame height affecting the opener performance in each section of the machine.

The wing down pressure gauge is for reference. Visual inspection of the frame height, evenness, and product placement is sometimes the best way to decide if an adjustment is required.

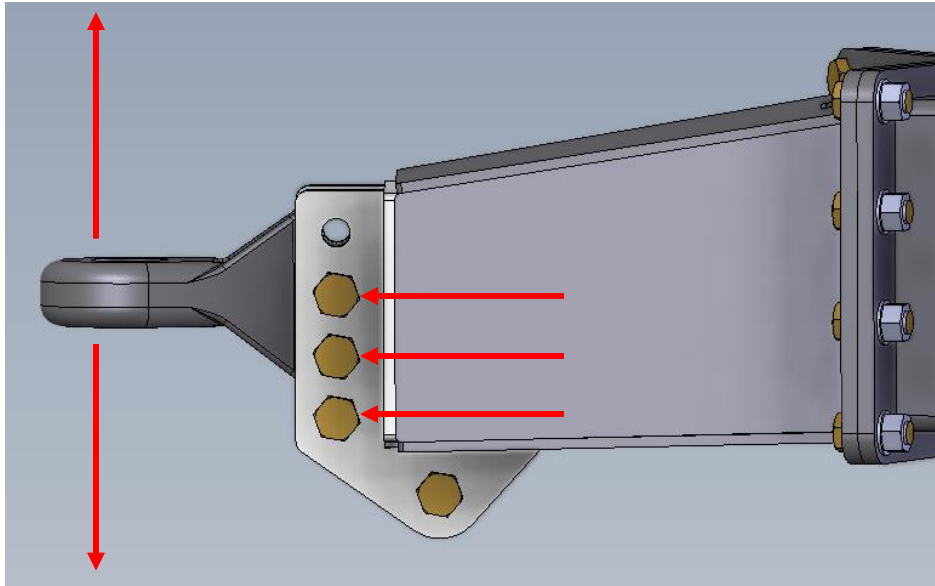
Reference your Ultra SR Operator's Manual for any hydraulic pressure settings.



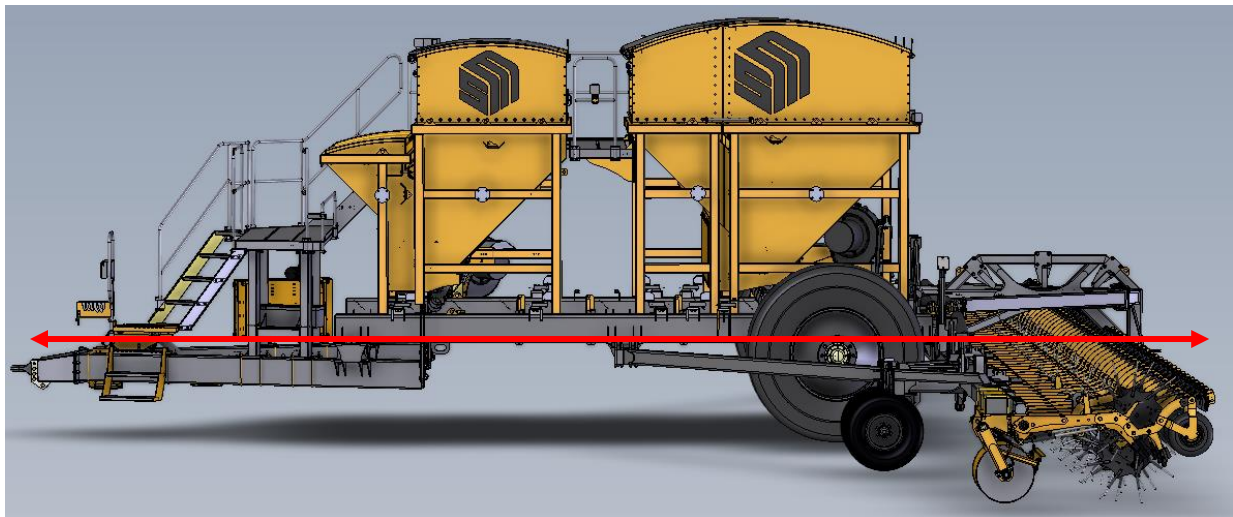
FRAME LEVELING PROCEDURE

Proper product placement and opener penetration is relative to a level frame and the height of the “opener rank”. Frame leveling is required during tractor pairing. The hitch tongue height is manually adjustable, and the rank height is controlled electronically over hydraulic via adjustable Hall Effect Sensors.

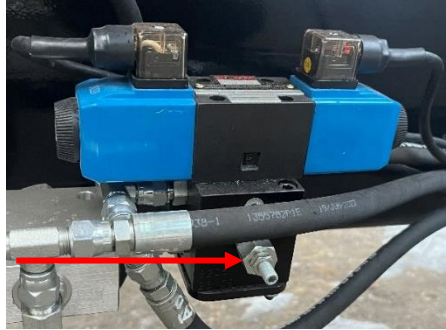
1. Activate the System Pressure and Smart Opener Pressure.
2. Activate the master switch to lower the openers into the ground and build pressure.
3. Set your opener down pressure to 800 PSI.
4. Tractor hitch heights vary. To level the drill from front to back, raise or lower the drill hitch tongue to ensure a level drill frame in the seeding position. See images below.



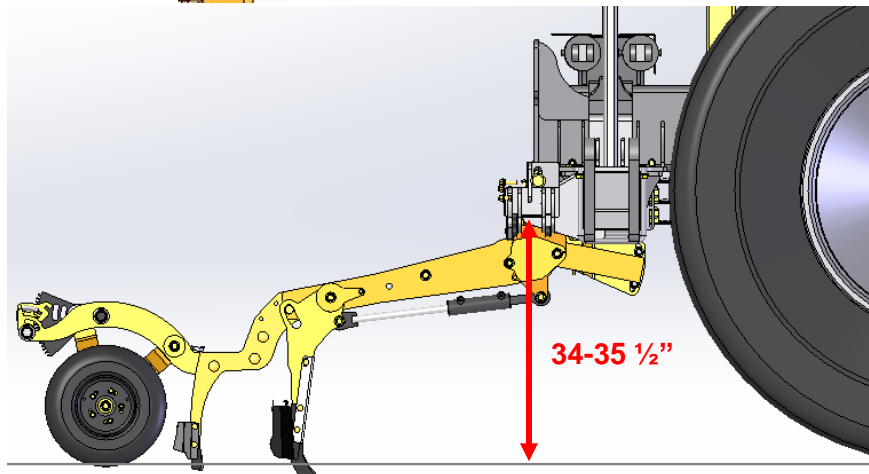
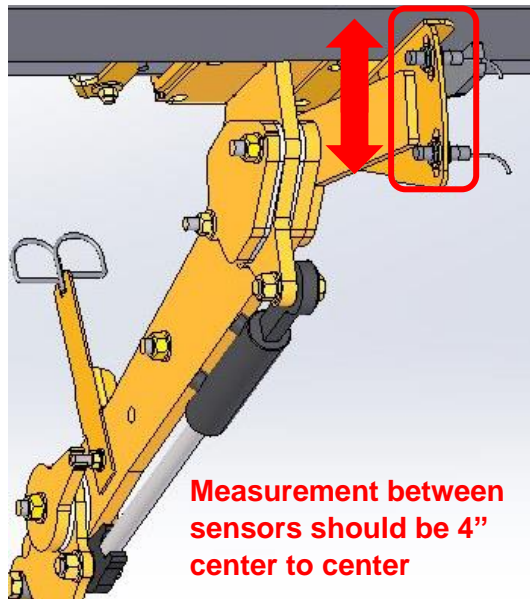
5. Pull your tractor forward approximately 100 feet to ensure the openers are properly penetrating. ***Stop your machine with the openers still engaged.***
6. Measure from the bottom of the main frame rank 4 x 4 to the ground. Measurements should be taken from the left and right ends of the rank to ensure consistency.



7. The axle raise/lower speed is adjustable. If it is too fast up or down, damage can occur. This is adjusted with a needle valve on the raise/lower hydraulic manifold located on inside of the rear axle. Turn the valve in to decrease speed, and out to increase. Raise time should average 8 seconds, lower should average 4 when tanks are empty.



8. Adjust the hall effect sensors up or down so the bottom of the main frame rank is 34-35 ½" above the ground when tanks are loaded.



9. Visually inspect the knives facing the front of the machine. Using the deflector shields as an added visual, the fertilizer knives should all be consistently penetrating to the point that their carbides are not visible.

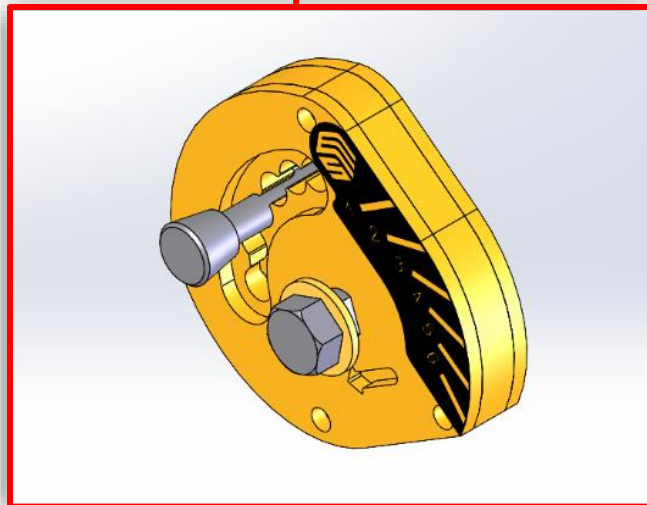
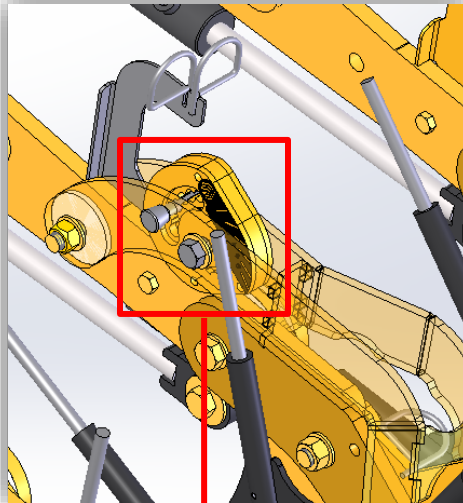
RESIDUE WHEEL DEPTH CONTROL

The Residue Wheel Depth Control is a cam-based depth control system that allows the operator to adjust the Residue Management System's tine depth. The cams help manage Residue Wheel tine over-engagement. This reduces wear and adds to the longevity of the tines and the Residue System overall. It is recommended to adjust the Residue Wheel cams while setting the drill for the current field's seeding conditions (moisture, trash, depth).

If the cam adjustment is not set, the tines will penetrate deep requiring additional horsepower and fuel in addition to creating premature wear and added stress on the belt connector links, shafts, and fasteners.

To set the system for your field conditions, start at a setting of "2" and go up or down as required.

If the cam adjustment is set too shallow, field residue can begin to build putting extra stress on the Residue Wheel assemblies, drill frame, and opener components. Residue Wheel Depth adjustments are in 1" increments. Residue wheel assemblies can be set to different depths to vary the engagement across the length of residue wheel gang but should not exceed more than 1" difference in adjacent assemblies.



PACKING FORCE

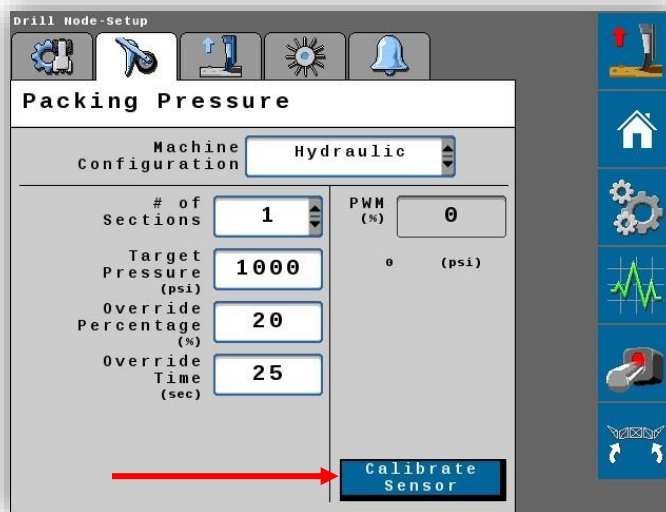
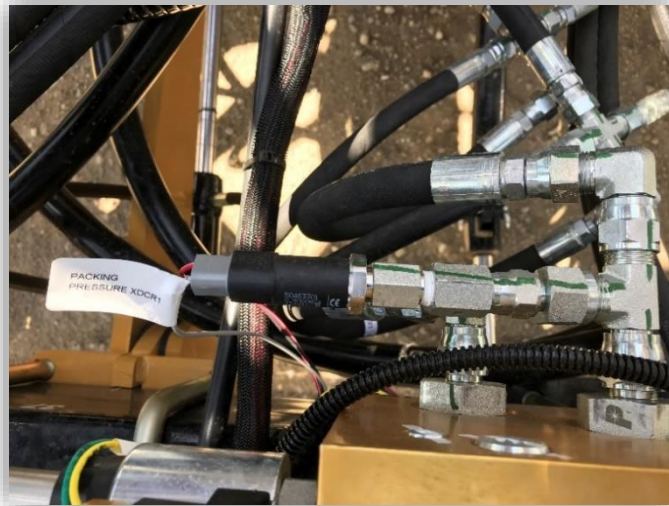
Once all the openers have been set to the user's desired depth, we need to establish a minimum hydraulic pressure to keep the fertilizer knife forward and fully engaged. Begin with a pressure of 800 PSI. If the openers are holding forward with good penetration, decrease the pressure until the fertilizer knives begin to "skate" or trip backwards in the soil. Then, increase the hydraulic pressure slightly until you see the knives pull forward and stay fully engaged. This is the minimum packing pressure. If the hydraulic pressure is too high, the openers will look rigid and won't contour to their full capability and should be decreased. After that, the hydraulic force for the packing pressure can be adjusted to set the seed bed soil pack to the appropriate level for soil type, conditions, crop requirement, and user preference. A good average hydraulic pressure is 800 PSI.

Note: To increase seed bed packing, increase the amount of hydraulic pressure to the openers.

Packing Force can be adjusted on your Ultra SR either manually ("M") or automatically ("A"). Manual adjustment leaves the setting up to the user to set pressures up and down on the DCM.

Automatic adjustment occurs with the use of a Hydraulic Packing Pressure Transducer. The user inputs the target pressure they desire, and the sensor keeps the system operating at that set value.

When operating a Hydraulic Packing Pressure Transducer, it is important to remember to calibrate the sensor before applying opener pressure. To begin setting in the field, switch it to Manual mode and note the actual hydraulic packing pressure in PSI (pounds per square inch) on the monitor. Increase the pressure manually and see if the packing pressure increase on the manual gauge on the hydraulic block matches that of the reading on your monitor. It should increase and decrease together in manual mode while seeding. If the hydraulic pressure is too high, the openers will look rigid and won't contour to their full capability and can be decreased. If the pressure is not adequate, the fertilizer knives will begin to trip backwards in the soil. Increase the hydraulic pressure until you see the knives pull forward and stay fully engaged. After that, the hydraulic force for the packing pressure can be adjusted to set the seed bed soil pack to the appropriate level for soil type, conditions, crop requirement, and user preference. Once the appropriate hydraulic pressure has been determined, it can be set on your monitor. Switch back to Auto mode and begin seeding. Note anything over 1200 PSI may require adjustment of all hydraulic functions to ensure proper drill performance.



PRODUCT PLACEMENT

Opener pressure can be adjusted while seeding. This pressure keeps the openers in the ground and packing pressure on the packer wheels.

It is recommended to start at 800 PSI of opener pressure and then begin to manually adjust. Visually inspect the openers and determine if enough hydraulic pressure is being applied to keep the fertilizer knife forward and fully engaged.

To check penetration and product placement, stop while everything is active with the openers in the ground (including the fans). Start by checking behind the seed and fertilizer knives.

Verify that the product is reaching the bottom of the opener furrows, and the product placement is satisfactory and accurate. Next, scratch out behind the packer wheel. This will help determine if the knife depths are adequate after the seed bed is packed. If the knives are not at the level desired, adjust the packer tire up or down accordingly. If there is no product at the bottom of the furrows, adjust the fans appropriately. If the seed bed is not packed properly, adjust the opener pressure up or down until the desired packing is achieved.

Once the Ultra SR reaches 1200 PSI of opener pressure for packing or placement, it is recommended to adjust the openers a notch deeper and then start over with determining the required packing pressure for the machine. At 1200 PSI, there is enough packing pressure to start manipulating the frame of the drill potentially causing damage to the openers and opener components. This in turn requires attention to wing down pressure to ensure the machine is contouring and seeding as the operator wishes the machine to perform.

