

DRILL CONTROL OPERATION

LiftMaster Feature (This is standard equipment)

This feature, once connected and configured in the monitor, allows the monitor to lift and lower the openers. (If the optional PackMaster feature is not installed then the drill Control Box is still required solely for controlling the opener hydraulic pressure.)

1. The Drill Control panel can be viewed in the Seeder Controller mini-view or in the expanded view by scrolling through the panels.

- A. **LiftMaster Control** - lifts and lowers the openers manually. Leave this button on for ASC to lift/lower the openers automatically based on coverage.
- B. **Drill Lift Track Master** - links the opener lift/lower state to the Master Switch state. With Track Master on, when you shut the Master Switch off it will override the LiftMaster state and lift the openers so you don't have to press both buttons when stopping seeding.



Important: Turn the Drill Control boom ASC & Track Master off for scenarios where you normally leave the openers in the ground to prevent skewing (e.g. steep hills) otherwise the openers may lift unintentionally over covered area.



PackMaster Feature (This is optional equipment)

This feature adds control of the opener hydraulic pressure within the monitor.

1. Go to settings and set Control Type for PackMaster operation.



i. Hydraulic Pressure

– will hold the opener hydraulic pressure at a preset pressure (the pack force on the ground will vary depending on soil conditions).

ii. Pack Force (before using this control type the PackMaster Calibration procedure needs to be performed on the load sensor)

– will automatically adjust the opener hydraulic pressure to maintain a preset pack force (gauge wheel force for 3820 PLR opener) on the ground. The hydraulic pressure will change in different soil conditions to maintain the pack force. Harder areas will require more pressure to overcome the draft and keep the pack force on the ground.

Note: when it is desired to operate near or below the low end of the pack force range (PHD/PLS/PLDS: 135lb(60kg), XTC/PLX: 190lb(85kg), PLW: 200lb(90kg), PLR: 125lb(55kg)), the Hydraulic Pressure control type should be used for stable control as the load sensor will be out of range.

iii. Alarms

- There is an alarm when controlling to pack force that will alert if operating at too low of a pack force.

- To correct either raise the packing force to an attainable level or if extremely low packing is truly desired switch control type to a set hydraulic pressure.

Note: If operating at too high of a pack force or hydraulic pressure there will be a high PackMaster pressure alarm indicating that it may not be performing as expected or that damage could be caused to the unit.

2. The Drill Control panel will have the extra controls added for the PackMaster feature.

C. **Requested PackMaster Value** - set to requested PackMaster value.

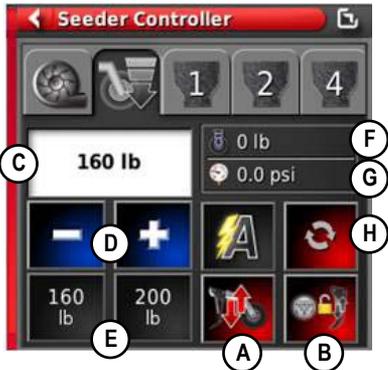
D. **Increment Buttons** - increase or decrease PackMaster value by specific amount entered in the settings page.

E. **Preset Buttons** - select a preset PackMaster value to control to. These values are entered in the settings page.

F. **Pack Force** - actual Pack Force (gauge wheel force for 3820 PLR opener) value (only accurate once calibrated).

G. **Hydraulic Pressure** - actual Hydraulic Pressure.

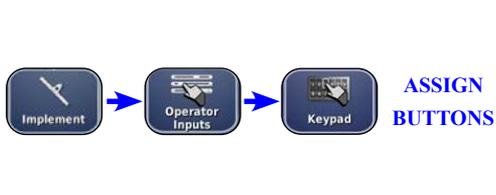
H. **PackMaster Control** - turns PackMaster on or off. Pressure will be applied to the openers when PackMaster is on as long as the openers are lowered and you are on an uncovered area or ASC is off. Turning PackMaster off with the openers lowered keeps them in the float position with no extra down pressure applied.



In Cabin Keypad Buttons

It is recommended that you assign some of the drill control functions to the in cabin keypad for easy access.

1. These are the suggested settings for buttons A & B.



2. Use the provided cabin keypad decal to mark the function of the assigned buttons.

Control Adjustments

1. If openers are lowering too late, or too soon, based on coverage then adjust the Lower Time setting accordingly (increase time to lower sooner).



2. If the opener pressure is spiking too high at the start of passes (packing too much / lifting rear wheels off ground) then decrease the Maximum PWM setting further. If trying to control to a very high packing pressure but it cannot be reached then slightly increase the Maximum PWM setting.



PACKMASTER CALIBRATION (This is optional equipment)

A calibration needs to be performed for the load sensor before controlling opener pressure based on packing force (gauge wheel force for 3820 PLR opener).

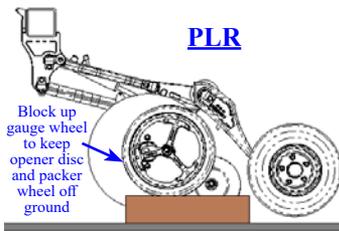
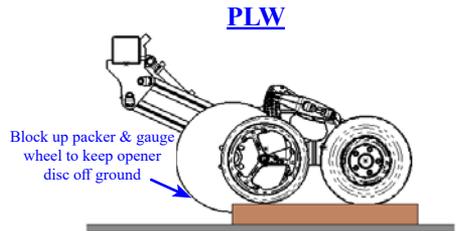
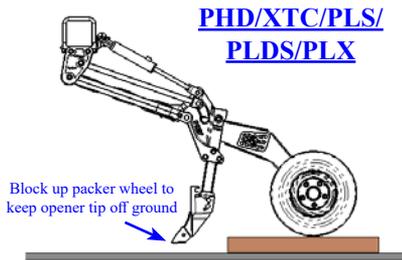
- Go to settings and confirm that Drill Model and Opener Type are set to match your equipment for proper calibration.



- Locate the opener with the load sensor installed (opener with cable coming off it at rear of main frame). Set depth setting for specific opener type following chart.

Opener Type	Depth Setting
3320/3420/3330/3335 PHD/PLS/PLDS	8
3320/3340/3330/3335 XTC/PLX	7
3720 PLW	1 (walking axle free to move)
3820 PLR	8

- Block up packer wheel (and gauge wheel for PLW) just enough to keep opener tip (disc) off ground when lowered and pressure is applied. For the 3820 PLR opener block up the gauge wheel just enough to keep the opener disc and packer wheel off the ground.



- Engage opener hydraulic circuit. For the 3820 don't engage the opener hydraulic circuit until the step for the 2nd calibration point, this will keep the openers up for the 1st calibration point.

- Open PackMaster Calibration wizard by pressing the button on the seeder controller configuration panel.



Step 1: Warns that openers will lower. Press right arrow to go to the next step.

Step 2: Openers should lower and apply pressure (stay up for 3820) to the 1st calibration point (low end of the packing range). After Calibration Value stabilizes within +/-5 press right arrow to go to the next step.

Step 3: The sensor load will be entered automatically based on drill model and opener type. Confirm from chart below. Press right arrow to go to the next step.

Step 4: Opener pressure will increase (for 3820 engage opener hydraulic circuit to lower openers, no pressure is applied) to the 2nd calibration point (high end of the packing range). After Calibration Value stabilizes within +/-5 press right arrow to go to the next step.

Step 5: The sensor load will be entered automatically (for 3820 enter the value from the table). Confirm from chart below. Press right arrow to go to the next step.

Step 6: Press check mark to complete calibration.

6. Remove blocking and set opener back to appropriate depth.

Opener Type	1 st Calibration Point				2 nd Calibration Point			
	Hydraulic Pressure		Sensor Load		Hydraulic Pressure		Sensor Load	
	psi	kPa	lb	kg	psi	kPa	lb	kg
3320/3420 PHD	500	3447	121.5	55.1	1500	10342	222.5	100.9
3330/3335 PLS	500	3447	115	52.2	1500	10342	209.0	94.8
3330/3335 PLDS	500	3447	125	56.7	1500	10342	219.0	99.3
3320/3420/3330/3335 XTC/PLX	500	3447	175.0	79.4	1500	10342	261.0	118.4
3720 PLW	250	1724	179.5	81.4	1000	6895	361.0	163.7
3820 PLR	0 (†)	0 (†)	0	0	0 (‡)	0 (‡)	250	113



Important: If the Calibration Value and Sensor Load at the 2nd calibration point are not significantly higher than the 1st point, PackMaster will not perform properly.

Recalibrate for proper operation.

IMPORTANT

- A factory PackMaster load cell calibration tag is attached to the opener with the load cell installed. These calibration values can be entered directly in the PackMaster settings. If there is any question of the performance of the drill controlling to pack force the first step should be to do an actual PackMaster calibration to confirm these values.

- Calibration should be repeated anytime the load sensor is replaced.

- Record your specific calibration values below. If you create a new profile the calibration values can be re-entered instead of recalibrating. (Use a permanent marker on this card to record your values; it can still be washed off if changes are needed)

- These settings can be accessed by selecting:



MIN CALIBRATION LOAD



MAX CALIBRATION LOAD



MIN CALIBRATION VALUE



MAX CALIBRATION VALUE





For more information go to the Customer Service area of www.bourgault.com.