13.2 X35 Drill Controll

The X35 can be configured to control certain functions related to the openers on the drill.

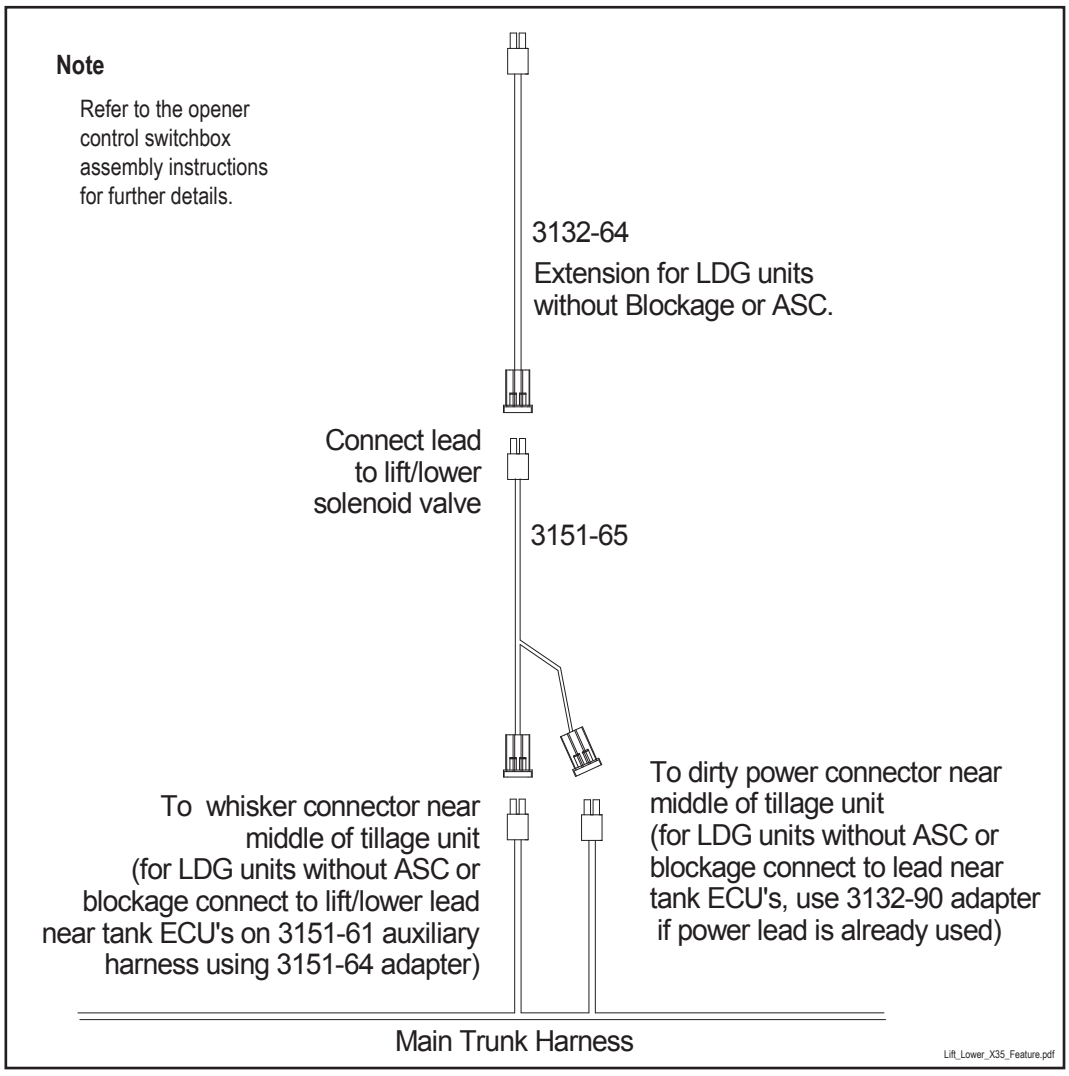


Figure 13.4 - Lift Master (Lift/Lower) Harness Layout

13.2.1 Lift Master Feature

Note

Lift Master can be used to automatically raise and lower the openers with the use of ASC. If ASC is ON and the Drill Control Boom is enabled, the openers will raise and lower automatically when going over coverage on the map.

The Lift Master feature allows the drill to be lifted/lowered by the X35. Refer to *Section 6.6.5.1 - Lift Master Settings* for configuring settings.

1. Select the Lift Master button  to lift or lower the drill manually. Leave engaged for ASC to automatically raise/lower the drill..

2. Turn the Track Master  on or off to set whether the Lift Master state will track the master state or not.
   a. If turned on then the drill position will follow master switch state.
      i. If the master is on, the drill will be lowered, unless the drill is manually lifted.
      ii. If the master is off, the drill will be lifted.
   b. If turned off then drill position is independent of master switch state.

Note

The main purpose of enabling Track Master is so the drill lifts when the master switch is manually turned off and the drill lowers when the master switch is manually turned on.

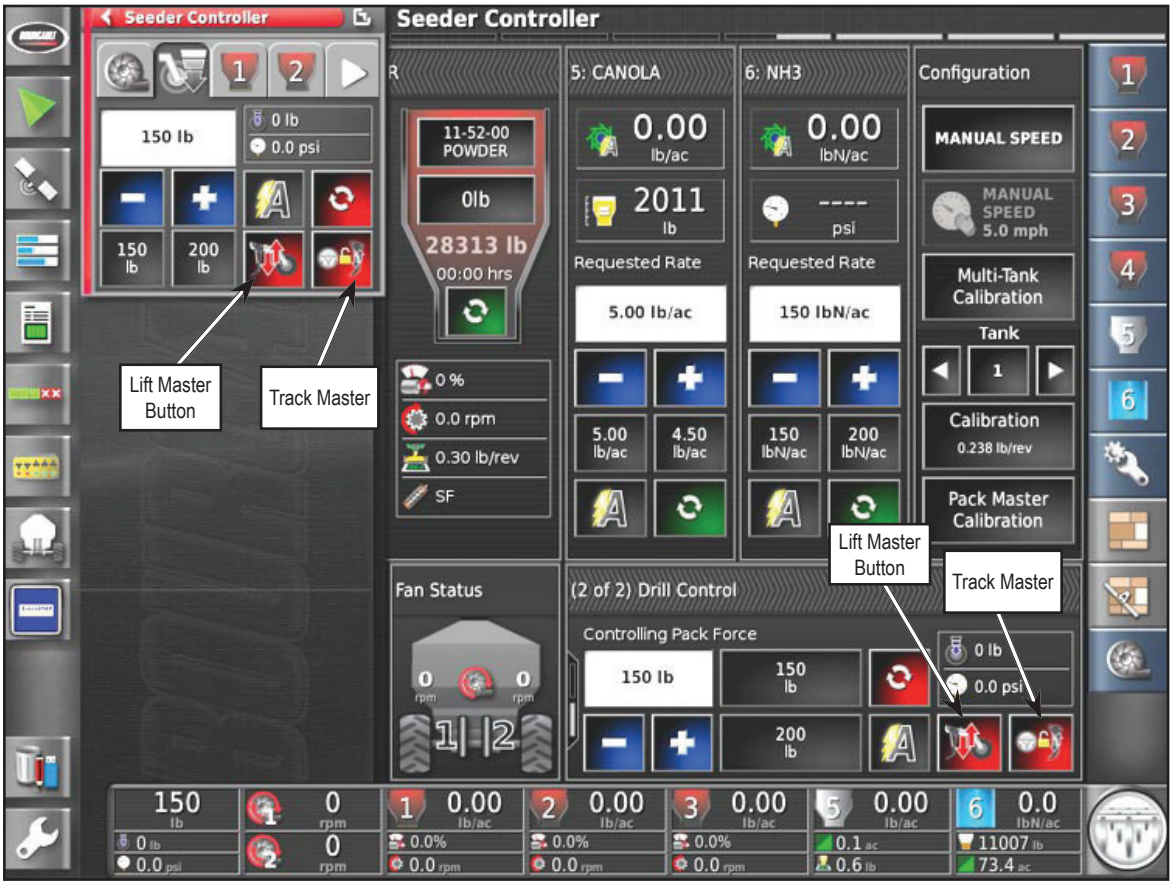


Figure 13.5 - Drill Control - Lift Master Feature

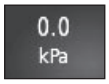
13.2.2 Pack Master Feature

This feature adds an extra CM-40 ECU to the drill to allow control of the opener pressure through the X35. It also uses a load cell on one of the opener packer wheels to read the actual pack force exerted on the ground. Refer to *Section 6.6.5.2 - Pack Master Settings* for configuring the settings.

Pack Master allows for 2 different control types: Hydraulic Pressure or Pack Force.

A. For hydraulic pressure control, the user sets a desired hydraulic pressure to control to and the resulting packing force will be displayed in the drill control panel as a reference.

B. For the pack force control, the user sets a desired packing force to control to and the resulting hydraulic pressure will be displayed in the drill control panel as a reference.

1. The requested pressure or packing force can be set depending on the control type setting.
2. The increase/decrease buttons  will adjust the requested value by the set increment value.
3. The preset buttons  can be used to switch the requested value to the set presets.
4. The actual pressure and pack force are displayed on monitor.
5. Set the control to auto for controlling to the set pressure or packing force or manual to drive to a set PWM value.

 - control set to Auto.

 - control set to manual.

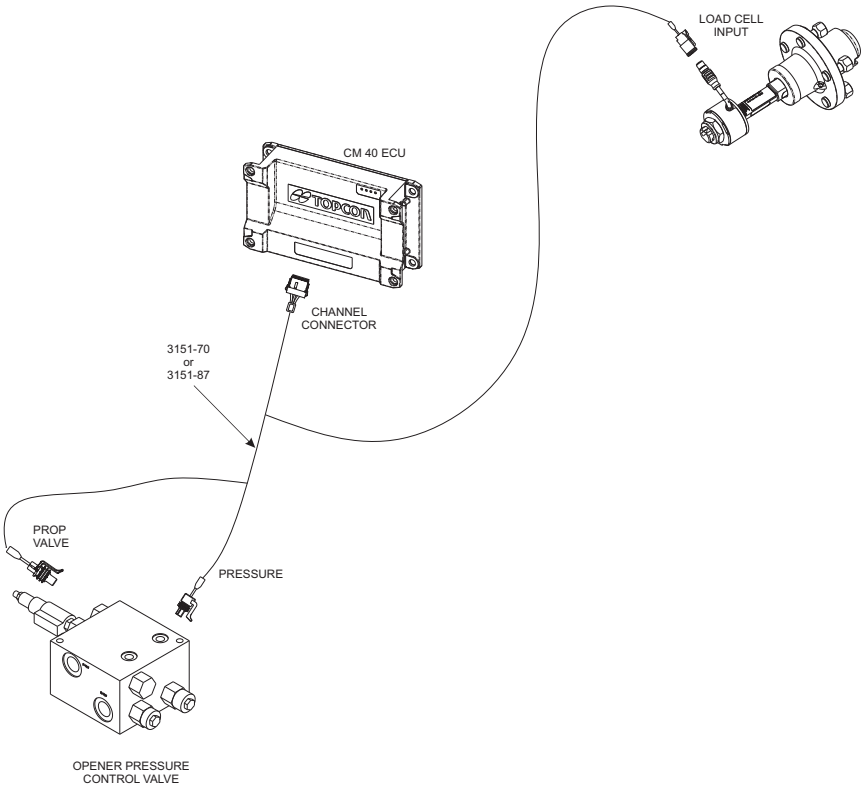


Figure 13.6 - Pack Master Harness Layout

6. Select the Lift Master button  to lift or lower the drill manually. Leave engaged for ASC to automatically raise/lower the drill.. The background color and the color of the up/down arrows on the icon will indicate state of the Lift Master feature.

   a.  Red arrows with a red background:

      i. Means the Lift Master button is disengaged so the drill is in the lifted position.

   b.  Green arrows with a yellow background:

      i. Means the Lift Master button is enabled but the drill is in the lifted position due to ASC being on over coverage or the master is off with track master enabled.

   c.  Green arrows with an orange background:

      i. Means the Lift Master button is enabled and the drill is moving to the lowered position. The background will stay orange for the lower time set in the Drill Control settings then it will change to green.

   d.  Green arrows with a green background:

      i. Means the Lift Master button is enabled and the drill is in the lowered position.

   e.  Greyed out:

      i. Means the Lift Master drive is not configured or ECU communication is not achieved.

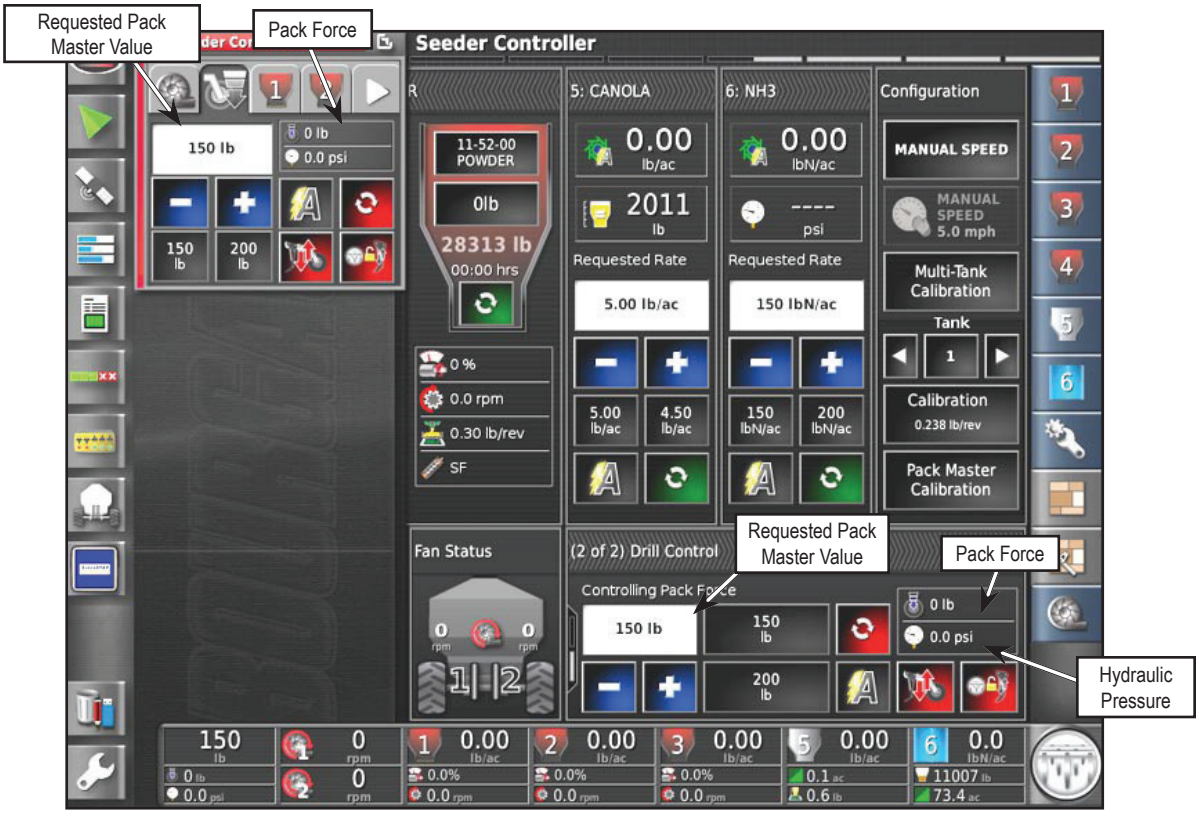


Figure 13.7 - Drill Control - Pack Master Feature

7. Turn the Pack Master button  on or off to engage or disengage the Pack Master pressure. When ON, the button will be green, when OFF it will be red.

    a. In order for the Pack Master to engage, the drill must be lowered on an un-seeded portion of the map or ASC must be off.

    b. Turning the Pack Master button off while the openers are down will leave the openers down but remove the down pressure. This state may be desired in a soft spot in the field in order to 'float' the openers while continuing to seed.

8. Turn the Track Master  on or off to set whether the Lift Master state will track the master state or not.

    a. If turned on (green) then the drill position will follow the master switch state.

        i. If the master is on, the drill will be lowered unless the drill is manually lifted.

        ii. If the master is off, the drill will be lifted.

    b. If the master is turned off (red), then the drill position is independent of the master switch state.

Note

The main purpose of enabling Track Master is so the drill lifts when the master switch is manually turned off and the drill lowers when the master switch is manually turned on.

13.2.2.1 Pack Master Calibration

Before the Pack Master feature can accurately measure the amount of packing force being applied by the opener, the load sensing packer spindle must be calibrated.

To ensure accurate calibration, the opener tip (disc) on the load sensing opener must not contact the ground.

1. It is recommended to place a block under the packer wheel (and gauge wheel for ICD), but one may also dig a hole under the tip (disc) if a block is not available.
2. In addition, the opener's depth setting should match the number from *Figure 13.8*.

Note

For best results, use a block about 2" tall, or just tall enough to get the tip off the ground. An excessively tall block may skew the calibration.

Opener Type	Depth Setting
3320 PHD	8
3320 XTC	7
3720 ICD	1 – Walking axle free to move

Figure 13.8 - Pack Master (Down Force) Calibration - Depth Setting

3. Once the packer wheel has been blocked, the remainder of the calibration can be done from the cab.
4. Engage the opener hydraulic circuit.
5. Enter the Pack Master Calibration wizard from the Seeder Controller Configuration panel, refer to *Figure 13.9*.
   a. The wizard will ask you for a lower calibration value and show you the drive power and hydraulic pressure.
      i. Turn on the Master switch and adjust the drive power slightly higher if desired.
      ii. Once steady, take note of the hydraulic pressure and select next.
   b. The resulting packing force can be found from the chart from *Figure 13.10*.
      i. Look up the pressure for your opener type and find the packing force.
      ii. Enter that force into the X35 and hit next.
   c. The wizard will ask you for an upper calibration value.
      i. Turn on the Master switch and increase the drive power until desired pressure is reached. Do not go any higher than your normal maximum operating pressure.
      ii. Once steady, take note of the hydraulic pressure and select next.
   d. Look up the resulting packing force from the chart in *Figure 13.10* and enter it into the X35.
      i. Click next and the calibration will now be complete.

Note

For best results, use between the lowest calibration value and an upper calibration value near the maximum pressure, making sure that the rear drill wheels are not lifting off the ground.

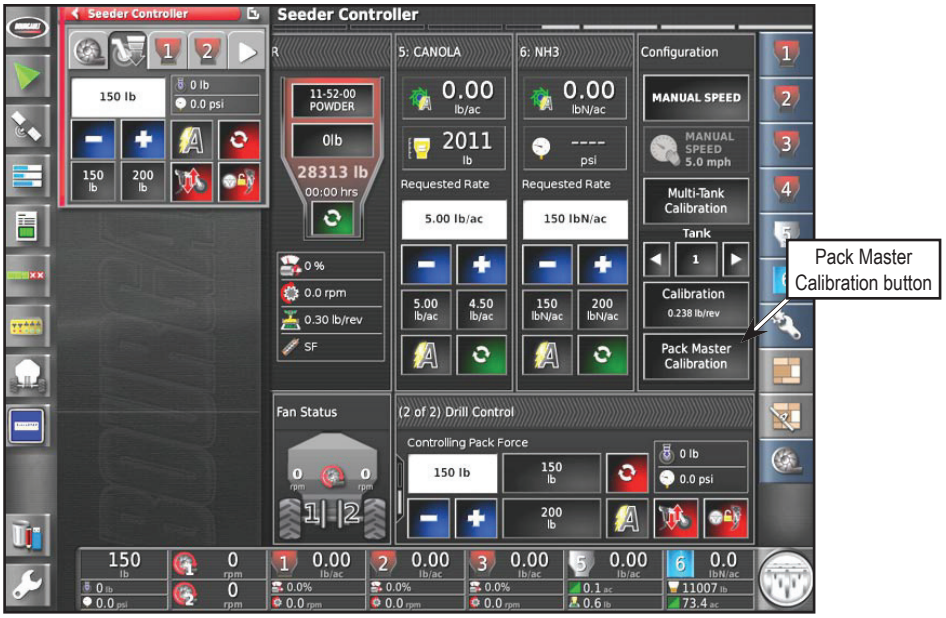


Figure 13.9 - Pack Master Calibration

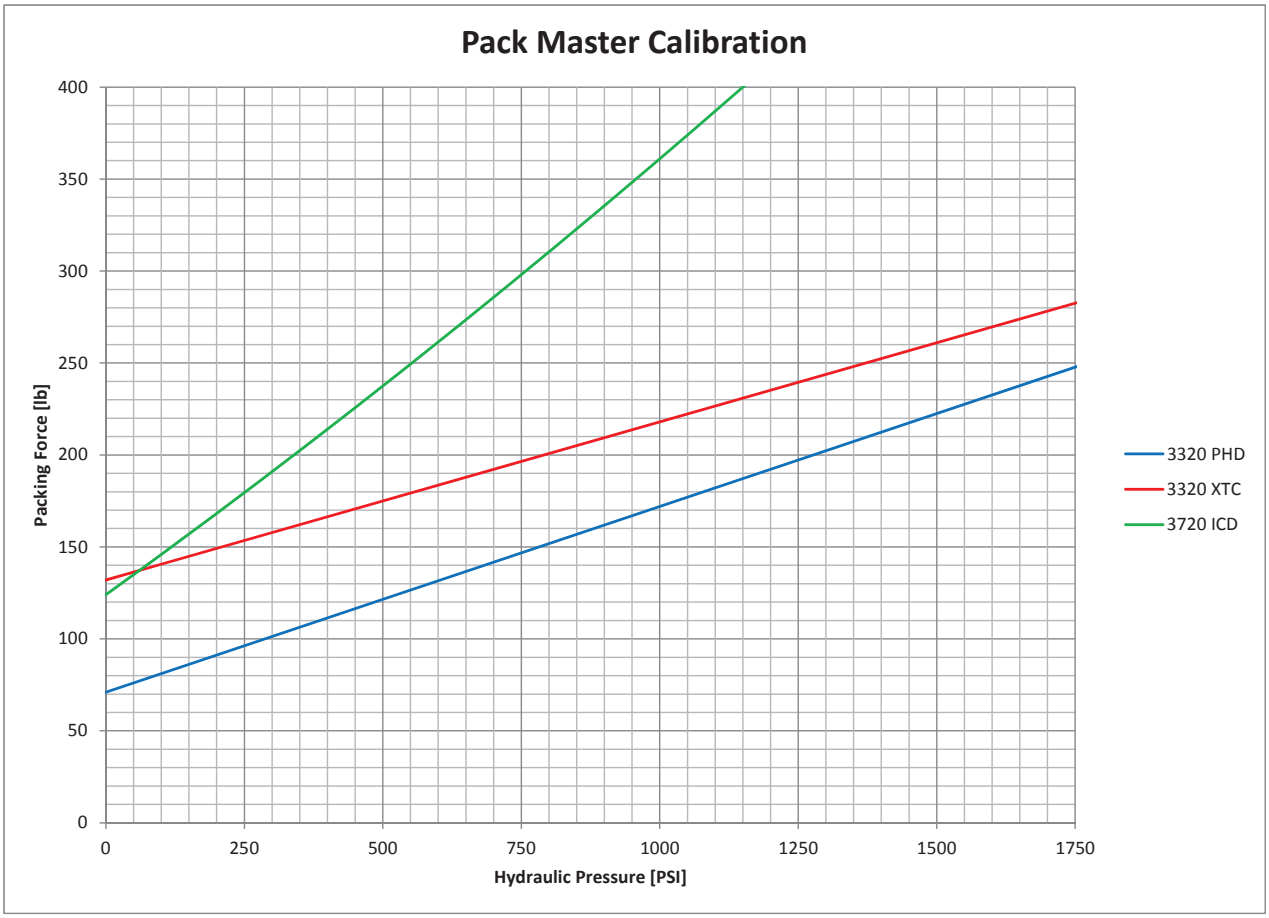


Figure 13.10 - Pack Master Calibration - Packing Force Chart