PACKMASTER
Assembly & Overview Instructions

This kit can retro fitted to any 3320/3310/3710/3720/3420 that is run on an Apollo tank

Kit # 9325-32 TBHD 3320/3720
Kit # 9325-33 LDG without Blockage or ASC
Kit # 9325-34 LDG with Blockage & ASC
   Kit # 9325-35 LDG Basic
   Kit # 9325-36 3420

NOTE: Any XTC Machine built before 2017 needs to also purchase a lower arm assembly 9325-81

If you need more help picking the right kit please contact your nearest authorized Bourgault dealer.
PackMaster

This feature adds an extra CM-40 ECU to the drill to allow control of the opener pressure through the X30. It also uses a load cell on one of the opener packer wheels to read the actual pack force exerted on the ground.

Pack Master (Down Force) 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.

The next steps will help in the installation of the Packmaster kit
1. Remove opener spindle and hub assembly from the right hand rear opener closest to the center of the drill.

2. Remove packer wheel then install the original spindle and hub assembly to the 2x5 or 3x5 tubing member on the rear tow hitch using the mount provided.

Loadcell spindle and hub assembly is to be installed on the right hand opener closest to the center of the drill on the rear row of openers.
3. Carefully install the new load cell spindle and hub assembly on the opener.
4. Mount the new CM 40 ECU to the left hand main frame secondary tower using the mount provided. Or stack it on the existing ECU if present.

*Note: ECU connection ports should be facing down.*
5. If there are available COMMS and power leads you may plug them into the ECU and proceed to Step 7.

6. If there is no existing drill Trunk harness and/or ECU breakout harness (or not enough leads on the ECU breakout harness), new harnesses should be included in your kit. Install the new harnesses.
7. If you previously had the Lift Master feature, please follow the next steps. If you did not previously have Lift Master installed, you will need to follow through the Lift lower presentation to get it installed.
8. Starting at the new load cell spindle and hub assembly carefully route the 3151-70 Pack Master harness to the ECU paying attention to pivot points.

Zip tie harness so the harness will not be damaged by moving parts and will allow enough opener movement, staying close to the opener pivot points will require the least amount of excess wire.
9. Plug the CHANNEL CONNECTOR from the load cell harness into the CH1 port of the CM 40 ECU.
10. Route the PRESSURE and PROP VALVE legs of the harness to the front hitch following the trunk harness.

11. Remove the existing connector from the hydraulic transducer and the opener down pressure valve and connect the two leads from the new harness.
12. Go into Setup menu of X30 then Implement/ECU/Add/Replace ECU.

13. Select ADD NEW ECUs at the top of the screen and follow the instructions.
Once the ECU had been detected press the green check mark
14. The new CM 40 ECU should have the same firmware version as the CM40 ECU(s) on the tank (for example 3.10-r1, 1.1.7). If it does not have the correct version go to the Monitor training section of the Bourgault web site and follow the X30 Apollo Upgrading software and ECU Firmware – 2017 PowerPoint.

NOTE
PLEASE REFER TO SECTION 13.2.2 - OF THE X30 V3.20 CONSOLE OPERATOR’S MANUAL (0252-90-74) FOR CALIBRATION AND OPERATIONAL INSTRUCTIONS.
**Pack Master (Down Force) Control** - set to enabled to use this feature if it is installed on the drill.

**Preset 1** - set to a value that can be used to immediately adjust the down force using the preset 1 button on the operation screen.

**Preset 2** - set to a second value that can be used to immediately adjust the down force using the preset 2 button on the operation screen.

**Increment** - set to a value that will increase/decrease the down force using the increment button on the operation screen.

**Pack Force Sensor** - set to enabled to use the load cell installed on an opener to read the actual pack force exerted on the ground.

**Control Type** - set to the parameter to control the down force to.

1. Hydraulic Pressure - to control to a set hydraulic pressure.

2. Pack Force - to control to a set pack force exerted on the ground.

**Second Display Value** - allows you to select a 2nd down force parameter aside from the control type to display on the screen.

**Map Value** - select the down force parameter to be mapped as a layer on the guidance screen.

**Drive** - select the ECU drive that the down force control is connected to. It will be Drive 1 on the last CM-40 on the list.

**Calibration Mode** - set to enabled to be able to calibrate the opener load cell from the operation screen.
The increase/decrease buttons will adjust the requested down force by the set increment value.

The preset buttons can be used to switch the requested valves to the set presets.

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.

From the seeder controller drill control panel, the pack force calibration wizard can be accessed to calibrate the load cell installed on one of the opener packer wheels to measure the pack force exerted on the ground.
Select the Lift Master (Lift/Lower) button to lift or lower the drill. The background color and the color of the up/down arrows on the icon will indicate state of the Lift Master (Lift/Lower) feature.

Red arrows with a red background: Means the Lift Master (Lift/Lower) button is disengaged so the drill is in the lifted position.

Green arrows with a yellow background: Means the Lift Master (Lift/Lower) 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.

Green arrows with an orange background: Means the Lift Master (Lift/Lower) 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.

Green arrows with a green background: Means the Lift Master (Lift/Lower) button is enabled and the drill is in the lowered position.

Greyed out: Means the Lift Master (Lift/Lower) drive is not configured or ECU communication is not achieved.
Turn the Pack Master (Down Force) button on or off to engage or disengage the Pack Master (Down Force) pressure. When ON, the button will be green, when OFF it will be red.

A. In order for the Pack Master (Down Force) to engage, the following requirements must be met:

1. There must be speed.
2. The drill must be on an un-seeded portion of the map or ASC must be off.
3. The master switch must be on.
4. There MUST be a job loaded.

B. If the Pack Master (Down Force) is desired without actually seeding, for example to test or to calibrate, the following settings are recommended:

1. Set manual speed.
2. Turn ASC OFF.
3. Temporarily set “fan speed to start” to 0 in order to turn the master on.

c. Turning the Pack Master (Down Force) button off while the openers are down will leave the openers down but remove the downforce pressure. This state may be desired in a soft spot in the field in order to ‘float’ the openers while continuing to seed.

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.
   • 1. If the master is on, the drill will be lowered unless the drill is manually lifted.
   • 2. 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.
Requested Downforce

Hydraulic Pressure
Please also refer to the website www.bourgault.com for the Lift lower presentation and the PackMaster calibration video.