SAFETY NOTICES

Safety notices are one of the primary ways to call attention to potential hazards.

This Safety Alert Symbol identifies important safety messages in this manual. When you see this symbol, carefully read the message that follows. Be alert to the possibility of personal injury or death.

WARNING

Use of the word WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Use of the word CAUTION with the Safety Alert Symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

Use of the word CAUTION without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in equipment damage.

DISCLAIMER

DICKEY-john reserves the right to make engineering refinements or procedural changes that may not be reflected in this manual. Material included in this manual is for information purposes and is subject to change without notice.
ROW-PRO DOWN PRESSURE

The IntelliAg system monitors and adjusts down pressure to ensure the same amount of force is applied to each row unit to maintain consistent seed depth placement. The operator sets the desired down pressure into the IntelliAg virtual terminal and then sets the spring pressure above the target down pressure.

If Row-Pro is added as a Feature Key, a dedicated Row-Pro button displays on one of the Button Selection Menu screens.

NOTE: Down pressure setup can only be accessed in User Level 2 Dealer or Level 3 OEM mode.

NOTE: A list of Feature Key software add-ons is found by pressing the Feature Keys button found at the System screen.

NOTE: Row-Pro Down Pressure is a limited automatic adjustment that works in conjunction with the down pressure springs. It does not independently control the full range of down pressure.

REQUIREMENTS

Row Pro Down Pressure is an optional customer add-on feature available with the IntelliAg system and requires the following components to operate:

- Down pressure module that interfaces with 2 load cells
- A maximum of 3 load cell modules
- Down pressure module harness
SETUP

To Set Row-Pro Down Pressure:
1. At the Home screen, press the Next Arrow button to navigate to the Row-Pro button.
2. Press the Row-Pro button to display the Row-Pro screen.
3. Enter desired constants per definitions below.

The number of Rear and Front check boxes is controlled by the number of down pressure modules plugged into the system. One module shows two boxes, two modules show four boxes and 3 modules show six boxes.

Figure 2
Set Down Pressure

CONTROL MODE
Down pressure has three control modes:
- Automatic
- Manual
- Monitor Only

Automatic
When control mode is set to Automatic, down pressure adjusts automatically during operation based on feedback sensor readings. The set point value is the target value that may be modified by Increase/Decrease buttons. Front-Rear linking can be enabled in Automatic mode.
Manual

When control mode is set to Manual, down pressure operates at the set pressure setting and will only change when pressure is adjusted by the operator on the Main Work Screen using the Increase/Decrease buttons. Front-Rear linking cannot be enabled in Manual mode and indicates on screen that it is Disabled.

Monitor Only

Monitors and displays down pressure during operation with no control. Allows for calibration of pressure springs via the Float Mode button.

FRONT-REAR LINKAGE ENABLED

Links the front and rear row units so that the same pressure increase/decrease set at this screen is applied to front/rear row units. When enabled only one increase/decrease value is entered.

Bar graph indicators on the Work Screen identify the amount of force applied in relation to the target set. In this mode, only one set of Increase/Decrease buttons appear on the Work Screen to adjust the percentage for both front and rear.

Figure 3
Front-Rear Linkage Enabled
FRONT-REAR LINKAGE DISABLED

The increase/decrease rate for front and rear row units is not linked and two values must be entered at this screen. When disabled, two sets of Increase/Decrease buttons appear on the Work Screen that allows adjustment of front and rear rates independently.

**Figure 4**
Front-Rear Linkage Disabled

TARGET RATE

The desired amount of down pressure (LBS/KG). The system will monitor and adjust pressure to meet the defined rate set at this screen.

INCREASE/DECREASE RATE

Establishes a set amount of pressure change for each increase/decrease. This value is applied to the target rate while on the Work Screen. Refer to Front-Rear Linked description for linking front/rear row units.
SENSITIVITY ADJUST
Sets the response time of the control channel.
- Increasing the adjustment above zero provides a quicker response time;
- Decreasing the adjustment to a negative number provides a slower response time.

CAUTION
Use caution when selecting a sensitivity adjustment. A rate set too high could potentially cause equipment damage.

DISABLE DOWN PRESSURE MODULES
Modules with control outputs can be independently disabled so that down pressure from disabled outputs do not display and are not used in adjustment calculations. Disabled outputs are ignored by the system and will not report down pressure data or react to soil conditions.

To Disable:
At the Row-Pro screen bottom, modules are identified by serial number. Enabled outputs contain a check mark.

1. Press the desired output to uncheck and disable. The disabled outputs no longer appear on the Work Screen.

Figure 5
Disable Down Pressure Modules
SETTING ALARMS AND LIMITS

Defined parameters alert of conditions outside of normal operating limits and can be customized to user preference.

**To Adjust Alarms and Limits:**

1. At the Row-Pro screen, press the **Limits** button.
2. Set adjustments as defined below.

### Figure 6

#### Limits

**LOW/HIGH LIMITS**

Sets the maximum and minimum limits that are reached when adjusting pressure using the Increase and Decrease buttons at the Work Screen. An alarm is triggered when limits are exceeded.

**ALARM DELAY**

The length of time at which the alarm threshold is reached before an alarm is triggered.

**LOW/HIGH ALARM THRESHOLDS**

Exceeding the alarm thresholds is indicated by the bar graph displaying in red. The thresholds are percentages of the target rate specified on the Row-Pro screen. Normal target range is green.
LOW/HIGH WARNING THRESHOLDS

Exceeding the warning thresholds is indicated by the bar graph displaying in yellow. The thresholds are percentages of the target rate specified on the Row-Pro screen. Normal target range is green.

FLOAT MODE

Float Mode allows calibration of pressure springs via the Float Mode button by holding all drive lines high and opening all ports to the cylinder. Float is achieved in Monitor Only mode and applies to all channels.

In a four valve (two drive line) configuration, float opens the air source line. To prevent this, an added circuit outside the control system shuts off the air supply when in float mode.

1. At the Row-Pro screen, change the Control Mode to Monitor Only.
2. Press the Down Pressure button.
   - Float Mode button appears only when Control Mode is selected as Monitor Only.
3. Press the Float Mode On button to begin the calibration.
4. Press the Float Mode Off button to stop the calibration.

Figure 7
Float Mode
SELECTING ROW-PRO AS AN INSTRUMENT TYPE

Row-Pro must be selected as an instrument display type to appear on the Work Screen (Figure 8). Row-Pro down pressure displays the actual down pressure values on the Work Screen when the master switch is turned ON and allows for manual or automatic adjustment. Main Work Screen view is a 1x2 column spread.

To Select a Row-Pro Instrument Display Type:

1. At the Home screen, press the Instruments button.
2. Select one of the open quadrants.
3. At the Display Type screen, select the Row-Pro button.
4. Select the instrument and press the Done button to accept.
   – Press the Clear button to remove the selected data item

Figure 8
Selecting a Quadrant and Display Type
WORK MODE

While operating, constants defined at the Row-Pro Setup screen will display on the Work Screen when the master switch is turned on to monitor and control down pressure.

ADJUSTING THE TARGET RATE

1. Press to highlight the Row-Pro instrument on the Work Screen.
2. Press the increase (+) button on the Work Screen to increase the target rate. The rate will change based on the increase setting defined at the Setup screen.
3. Press the decrease (-) button on the Work Screen to decrease the target rate. The rate will change based on the decrease setting defined at the Setup screen.
4. Down pressure bar graph indicators display the amount of force applied to front and rear relative to the target rate defined at the Setup screen.

Bar Graph Color Indicators

Bar graphs fluctuate based on how far above or below the amount of force is from the desired target rate and change color to indicate it is exceeding the target threshold. Yellow (outside of threshold) Green (within normal range).

Figure 9
Adjusting Down Pressure Target Rates
WORK MODE INFORMATION SCREEN

At the Work Screen, a Down Pressure Information screen is accessible for viewing inputs to aid in troubleshooting.

Screen displays:
- Load cell voltage/weight of up to 6 inputs
- Rear/front average
- Bar graphs display real-time monitoring

Pressure Inc/Dec buttons adjust the percentage of pressure applied.

To View the Row-Pro Information Screen:

1. At the Work Screen, select the Row Pro Instrument box to highlight.
   - The Row-Pro Information button appears in the right side bar.
2. Press the Information button to open.

Figure 10
Down Pressure
CLEARING DOWN PRESSURE READINGS

Resetting Offset Values clears previous down pressure readings and resets values to zero.

To Reset Offset Values:

1. At the Down Pressure screen, press the Set Offset button.
2. Raise implement. This is required before the Reset button appears and values can be cleared.
3. At the Set Offset screen, press the Reset button to clear values.

IMPORTANT: Verify that side depth (gauge) wheels are not stuck in a position to leave a residual pressure on the load cell.
DIAGNOSTICS

The Down Pressure Diagnostics screen is informational only and used for troubleshooting purposes.

Screen displays:
- Load cell voltage/weight
- Rear/front average
- Bar graphs display real-time monitoring

To View Down Pressure Diagnostics:
1. At the Row-Pro screen, press the Down Pressure button.
2. Press the Increase/Decrease buttons to adjust pressure accordingly.
3. Verify pressure readings are accurate and the controls function appropriately.

⚠️ DANGER ⚠️

When Control Mode is set to AUTO, the machine becomes operational. All necessary precautions must be taken to ensure user safety. Failure to practice all necessary caution may result in serious injury or death.

Figure 12
Down Pressure Diagnostics
LEAK TEST

Performing a Leak Test checks for suspected problems such as the compressor cycling more than normal. This test applies pressure to cylinders to assist in finding a change in down force.

1. At the Row-Pro screen, press the **Leak Test** button.
2. Press the Cycle Time input box and enter the cycle time in seconds. – Enter 0 for a manual test advance.
3. Press the **Start** button to begin test. Test cycles as follows. – All rear down force increase – All rear down force decrease – All front down force increase – All front down force decrease
4. Listen for air leaks or look for down force to not adjust.
5. This test repeats until pressing the **Stop** button.

**NOTE:** If front or rear down force is not installed, these outputs will not turn on.

**NOTE:** For troubleshooting and technical assistance, please contact your local Great Plains representative.

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**DANGER**

When performing a leak test, the machine becomes operational. All necessary precautions must be taken to ensure user safety. Failure to practice all necessary caution may result in serious injury or death.

*Figure 13

Leak Test*
### ALARMS

<table>
<thead>
<tr>
<th>Alarm #</th>
<th>Probable Cause</th>
<th>Possible Resolutions</th>
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</table>
| 268     | Down Pressure exceeds the high limit. Press the Alarm Cancel button to clear. | 1. Check planter spring settings  
2. Check load cell sensor for damage  
3. Check air valve for damage  
4. Check harness for damage  
5. Check module for damage |
| 269     | Down pressure exceeds the low limit. Press the Alarm Cancel button to clear. | 1. Check planter spring settings  
2. Check load cell sensor for damage  
3. Check air valve for damage  
4. Check harness for damage  
5. Check module for damage |
| 270     | Load cell failure alarm. Press the Alarm Cancel button to clear. | 1. Check planter spring settings  
2. Check load cell sensor for damage  
3. Check air valve for damage  
4. Check harness for damage  
5. Check module for damage |